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# USSR Agricultural Situation

Review of 1976 and  
Outlook for 1977



United States  
Department of  
Agriculture

Economic  
Research  
Service

Foreign  
Agricultural  
Economic  
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**ABSTRACT:** Soviet agricultural output in 1976 was well above 1975's drought-reduced level. Unusually wet weather resulted in record or near record grain, sugarbeet, cotton, vegetable, and fruit crops, although sunflowerseed and potato production were both disappointing. Livestock were largely maintained, despite drought-reduced feed supplies during early 1976. Poultry inventories regained their predrought level by the end of 1976, but hogs managed a smaller recovery. Output goals for 1977—except for sunflowerseed, sugarbeets, and flax—appear attainable unless weather is worse than average.

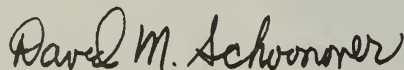
**KEYWORDS:** Soviet Union, agricultural production, crops, livestock, agricultural inputs, agricultural trade.

## FOREWORD

This report reviews and analyzes major developments in the Soviet food-and-fiber system during 1976 and provides information on the outlook for 1977. Emphasis is given to agricultural developments of major concern to the United States, especially developments affecting the outlook for foreign trade of farm commodities.

The report updates and supplements statistics and other information found in Foreign Agricultural Economic Report No. 118, *The Agricultural Situation in the Soviet Union: Review of 1975 and Outlook for 1976*. It is one of seven regional publications on the world agricultural situation. Other reports are being published on Western Europe, Eastern Europe, the Western Hemisphere, Africa and West Asia, Asia and Oceania, and the People's Republic of China.

Judith G. Goldich directed and coordinated preparation of this report. Sections of the report were written by Angel O. Byrne, Judith G. Goldich, Gregory D. Miller, and Fletcher Pope, Jr. Carolyn E. Miller assisted in the compilation of statistical data. Information submitted by the U.S. Agricultural Attache and his staff in Moscow is acknowledged with appreciation. Crop production data for 1976 and selected other statistics were made available by the USSR Central Statistical Administration under the US-USSR Agreement on Agricultural Cooperation.



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# USSR Agricultural Situation

## Review of 1976 and Outlook for 1977

### SUMMARY

Soviet agricultural output in 1976 recovered sharply from 1975's generally poor showing, but was 2.5 percent below plan. USDA estimates that output in 1977 will increase less than 5 percent over the 1976 level, regaining the levels attained in 1973 and 1974, but actual results will depend mainly on the weather. Weather would have to be unusually favorable for output to exceed the 1973 record.

Grain output in 1976 set a new record of 224 million tons, 60 percent more than the drought-damaged 1975 crop and 1-2 million tons more than in 1973, the previous record year. Wheat output totaled 97 million tons, 46 percent more than the preceding year's disastrous tally. However, the 1976 grain crop contained more moisture and trash than did crops in most other years.

The Soviet grain harvest this year reportedly is planned at 213.3 million tons, to be obtained with a planned yield of 1.66 tons per hectare. That would imply use of 128.5 million hectares for grain output, roughly equal to those of the past 2 years. The harvest target seems attainable. Weather thus far supports that assessment, but rainfall and temperature during May-July are crucial determinants of the eventual crop.

Weather in 1976 was generally beneficial to Soviet agriculture. Above-normal precipitation occurred during the spring and summer over most of European USSR, including southeastern European USSR—normally a marginal rainfall area. Rainfall was somewhat below normal during the spring in Asiatic USSR, but picked up and averaged about one-fourth above normal during the critical post-sowing period. Good precipitation largely accounted for record grain, forage, and sugarbeet crops.

Cooler than normal temperatures in European USSR during most of the growing season caused delays in development of late crops such as corn and sunflowers. Delayed plant development and

unusually cold October weather significantly reduced the harvested area of corn for grain and sunflowers, and also damaged the potato and vegetable crops.

Grain utilization from the 1976 crop is expected to show a sharp recovery in the amount of grain used for feed. Soviet grain imports dropped sharply in 1976 as domestic supplies improved. A substantial rebuilding of grain stocks is likely.

The 1976 output of all major feeds, except potatoes, was above 1975's disastrous levels. Aggregate feed supplies, in terms of feed units, are up an estimated 20-25 percent from 1975/76. Feed grain supplies increased sharply as a result of the record 1976 grain crop, and feed use of grain is expected to recover to about 105 million tons during 1976/77, up nearly one-quarter from the preceding year. The total forage crop harvest was also well above the 1975 level, and was close to the 1973 record, although much of it was very wet. Production of nongrain concentrates is expected to increase in 1976/77, with meal produced from imported soybeans compensating for low sunflowerseed meal output from the disappointing 1976 crop. Industrial mixed feed output reached 46 million tons in 1976, up more than one-tenth from 1975.

Industrial crop production was mixed in 1976. Cotton output reached 8.3 million tons, second only to the record 8.4-million-ton crop in 1974. The more favorable weather and also plentiful supplies of irrigation water explained the improved performance, despite slight earthquake damage and some flooding in the spring. The sunflowerseed crop, on the other hand, totaled only a disappointing 5.2 million tons. Vegetable oil output in 1976, at 2.8 million tons, was the smallest since 1973; only a slight recovery is now forecast for 1977. A record sugarbeet crop—98.6 million tons—was gathered. Because of lower sucrose content and consequently lowered extraction rates, refined beet sugar output in 1976/77 is not

expected to even equal the 7.1-million-ton total of 1975/76.

Potato production, at 85.1 million tons, was below 1975's disappointing level and the third mediocre crop in a row. The 23.5-million-ton vegetable crop was about the same as in 1975. Output of fruit (including grapes) reached a record of about 15 million tons, with grape production a near or record level.

The Soviet livestock sector recovered somewhat from the major setback it suffered as a result of the severe 1975 drought. Poultry inventories at the start of 1977 probably had fully recovered and hog numbers were ahead of a year earlier, although cattle, and sheep and goat numbers were down. Meat production in 1976 fell 10 percent to 13.4 million tons, the lowest level in the past 5 years. Milk production slipped 2 percent, while butter output increased 3 percent. Egg and wool production decreased 3 and 7 percent, respectively.

Capital investment in agriculture in 1976 totaled 32.1 billion rubles, 2 percent above plan. Agriculture's share of investment in the economy was 27 percent, the same as in 1975. Despite increasing money investments in agriculture, capital productivity of the sector has fallen.

Machinery deliveries to agriculture were generally disappointing. Deliveries of trucks and tractors were both below plan and lower than in 1975. Grain combine deliveries, however, at 98,000 units, were both above plan and ahead of 1975.

Completion of irrigation and drainage projects was below plan in 1976. A total of 750,000 hectares of newly irrigated land, and 720,000 hectares of newly drained land came into use in 1976—14 and 22 percent below plan, respectively. A new decree on land improvement measures, designed to speed up and increase land improvement work, was announced. Elevator capacity totaling 4.3 million tons was completed in 1976, slightly more than in 1975 but well below plan. Almost all new Government storage capacity built in the future will be in the form of elevators, although a small amount of

warehouse and metal storage bin capacity also will be constructed.

Agriculture received 77.1 million tons of mineral fertilizer (in terms of standard units), almost 4 million tons more than in 1975, but 1.5 million less than plan. Production of weedkiller and other plant protection chemicals totaled 456,000 tons (in terms of standard units), about 4 percent more than in 1975.

U.S. agricultural exports to the USSR jumped to \$1.6 billion in calendar 1976, from \$1.2 billion the preceding year. Grains accounted for the largest single share of shipments, with soybeans accounting for most of the remainder. Under the terms of the US-USSR grain agreement, the Soviets purchased 3 million tons of wheat and 3.5 million of corn for delivery by the end of September 1977. Exports of about \$1.1 billion are forecast for 1977.

Soviet overall trade turnover with hard currency trading partners totaled about \$25 billion in 1976. Imports are estimated at about \$15 billion, exports at about \$10 billion. The Soviet hard currency trade deficit, estimated at \$5 billion, dropped in comparison with the preceding year. Imports of grain probably accounted for about half of the deficit.

Soviet planners are developing methods for improving the efficiency and increasing the output of the agricultural sector. A decree on seed improvement, published in November 1976, mandates changes in the seed production, storage, and supply system designed to ensure an adequate supply of viable seeds to Soviet farms. An interfarm and agroindustrial integration decree reemphasized the Soviet Government's interest in increasing agricultural specialization and modernization. In addition, the Soviets have made extensive upward revisions in their base plans for procurement of agricultural products from the farms. The changes call for increased procurements at base price rates and somewhat lowered procurements at augmented price rates, and could lower average prices paid to farms.

## GRAIN OUTPUT SETS NEW RECORD

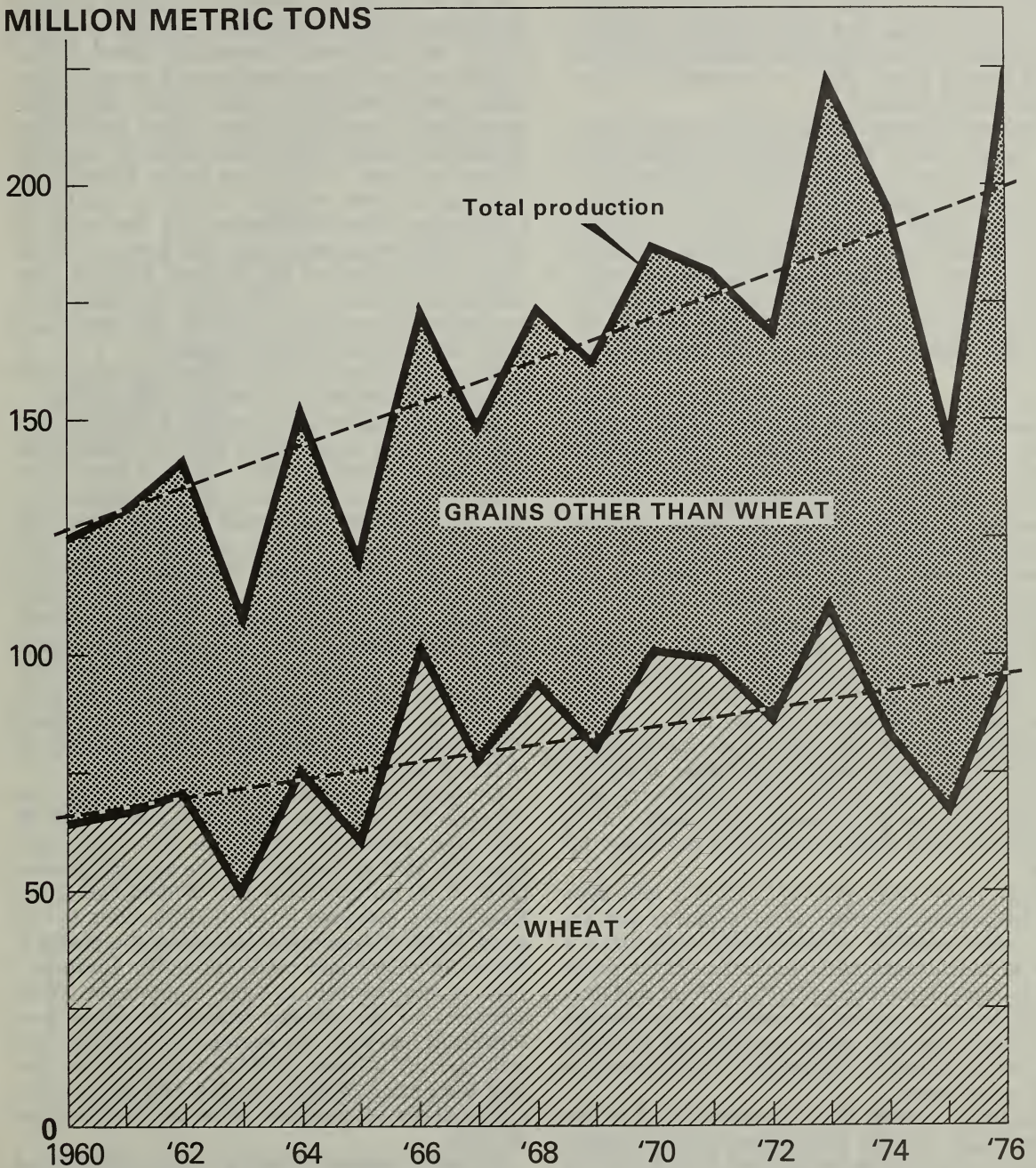
The Soviet Union in 1976 harvested a record grain crop of 224 million tons (fig. 1). The harvest was 84 million tons larger than the disastrous 1975 crop, 17 million above plan, and 1.2 million more than the previous record, set in 1973. However, the excess moisture and trash content of the 1976 crop is estimated to be considerably higher than average, and much of the crop is believed to be of below-average quality because of frequent rains

and other difficulties during harvesting. Nevertheless, the grain harvest is sufficient to meet domestic requirements, permit the resumption of sizable grain exports, and enable the Soviets to rebuild significantly their badly depleted carryover stocks of grain.

Weather during the 1976 growing season was generally rainy and cool. Precipitation over most of European USSR was about 20 percent above nor-

# GRAIN PRODUCTION IN USSR

MILLION METRIC TONS



mal during the spring and increased to roughly 50 percent above normal during the summer. This good precipitation extended through the southeastern part of European USSR, which generally is a marginal moisture area. In the Asiatic part of the USSR, rainfall was only about two-thirds of normal in early spring, but then averaged roughly a fourth above normal during the critical period from spring seeding in late May to the beginning of harvesting in late August.

Cool temperatures during the 1976 growing season caused concern about delayed development of late-maturing crops, including corn for grain. Temperatures averaged about 2°C. below normal in European USSR during May-August. In Asiatic USSR, on the other hand, temperatures during the growing season averaged somewhat above normal, except in July and September. Delayed plant development and unusually cold October weather significantly reduced the area of corn harvested for grain.

The cool, rainy weather resulted in a steady increase in soil moisture supplies as the growing season progressed. In European USSR, moisture supplies increased from about normal levels in April to more than double the usual amounts by September. In Asiatic USSR, soil moisture supplies declined somewhat in the spring months to a level somewhat below normal, but then improved and averaged somewhat above normal during the remainder of the growing season.

The final 1976 Soviet grain area was 127.7 million hectares, almost equal to the 127.9 million hectares occupied by grain in 1975—the high in recent years (table 13). At the end of June 1976, a total of 131 million hectares reportedly were occupied with crops to be harvested as grain, the same as the figure reported a year earlier. The preliminary area figures decrease to the extent that such land is diverted to uses other than being harvested for grain.

Grain harvesting got off to a very late, slow start last summer because of a late spring and the cool, rainy weather. By mid-July, only about a third as much grain had been cut as the average for the same dates during 1971-75. From mid-July to mid-August, cutting proceeded at an average pace despite the cool, rainy weather, but the total area cut continued to lag behind that achieved in other recent years.

The rainy weather had a greater impact on the second stage of grain harvesting—that is, picking up the grain from the windrows and threshing it—than it had on the initial cutting of the grain into windrows. By the end of August 1976, almost 17 million hectares of grain were in windrows, exposed to the weather. This area represented over one-eighth of the total grain area on collective and state farms, was almost two-thirds larger than the

average of earlier recent years, and was about 2 million hectares larger than the previous record. The area of grain in windrows in 1976 did not fall below average until late September.

However, the Soviets were as successful in completing small grain harvesting in 1976 as in any other recent year, despite the early harvesting delays and problems. During the second half of August and early September, record rates of grain cutting and threshing—2 million to 2.5 million hectares daily—were achieved. Good harvesting weather in Asiatic USSR contributed to this high harvesting rate. Harvesting rates reportedly set records in the virgin lands of northern Kazakhstan. By mid-September, the total area cut in the USSR was larger than that achieved by the same date in any of the previous 5 years. Harvesting continued at a better than average rate in late September and early October, and the area of grain in windrows decreased rapidly.

Wheat accounted for 97 million tons of the 1976 Soviet grain crop and feed grains for 98 million.

All of the major grain-producing republics contributed to the record grain harvest. Kazakhstan harvested a record 30 million tons of grain, compared with 29 million tons in 1972, generally a very poor year in most other regions. Somewhat short of the record 1973 harvests were the 1976 grain crops in the Russian Federation (127 million tons) and in the Ukraine (45 million tons). Drought cut grain yields in the southern Ukraine, in northeastern Kazakhstan, and over rather large areas in Siberia. Also, extremely unfavorable fall and winter weather resulted in the reseedling of about 9 million hectares, or 25 percent, of the winter grains sown in the fall of 1975. Half of this reseedling was in the Ukraine.

Government purchases from the 1976 crop from the collective and state farms were a record 92 million tons, somewhat above the 90.5 million purchased in 1973 and also above the average planned level of 90 million tons for 1976-80 (table 17). Kazakhstan delivered a record 19.5 million tons of grain to the Government, exceeding the pledge to deliver 18 million tons made during Mr. Brezhnev's visit to the republic in early September. Grain deliveries by the Ukraine totaled 15 million tons, somewhat less than the average of 17 million tons delivered in 1973 and 1974. Deliveries by the Russian Federation (RSFSR) totaled 52.5 million tons, a little above the previous record of 52 million tons in 1973.

Normally, waste—including excess moisture and trash—is estimated to be about 10 percent of the Soviet bunker weight grain crop figure. It is estimated that waste from the 1976 grain crop will be 14 percent or 32 million tons. The higher than normal excess moisture and trash was confined to the grain harvested in European USSR since har-



Table 2--USSR foreign trade in grain, total and with the United States, 1971/72-1976/77 1/

Year beginning July 1	Wheat			Rye,			Feed grains			Rice,			Total grain		
	Imports	Exports	Net trade	Imports	Exports	Net trade	Imports	Exports	Net trade	Imports	Exports	Net trade	Imports	Exports	Net trade
Total grain trade:															
Million metric tons															
1971/72.....	3.5	5.8	-2.3	-0.2	4.3	0.7	+3.6	+0.2	8.0	6.7	+1.3				
1972/73.....	15.6	1.3	+14.3	+1.0	5.9	0.4	+5.5	+0.1	22.6	1.7	+20.9				
1973/74.....	4.5	5.0	-0.5	+1.0	5.5	0.9	+4.6	+0.1	11.1	5.9	+5.2				
1974/75.....	2.5	4.0	-1.5	3/	2.7	1.0	+1.7	+0.2	5.4	5.0	+0.4				
1975/76.....	10.1	0.5	+9.6	0	15.5	0	+15.5	+0.3	25.9	0.5	+25.4				
Average.....	7.0	3.3	+3.7	+0.4	6.9	0.6	+6.3	+0.2	14.6	4.0	+10.6				
1976/77 3/.....	5.5	1.0	+4.5	0	5.0	2.0	+3.0	+0.2	10.7	3.0	+6.7				
1977/78.....															
1978/79.....															
1979/80.....															
1980/81.....															
Average.....															
Trade with the U.S.: 4/															
Million metric tons															
1971/72.....	2/	0	2/	0	2.9	0	+2.9	0	2.9	0	+2.9				
1972/73.....	9.5	0	+9.5	+0.2	4.0	0	+4.0	0	13.7	0	+13.7				
1973/74.....	2.7	0	+2.7	+0.6	4.6	0	+4.6	0	7.9	0	+7.9				
1974/75.....	1.0	0	+1.0	2/	1.3	0	+1.3	2/	2.3	0	+2.3				
1975/76 5/.....	4.2	0	+4.2	0	10.3	0	+10.3	+0.1	14.6	0	+14.6				
Average.....	3.5	0	+3.5	+0.2	4.6	0	+4.6	2/	8.3	0	+8.3				
1976/77 3/.....	3.0	0	+3.0	0	3.0	0	+3.0	2/	6.0	0	+6.0				
1977/78.....															
1978/79.....															
1979/80.....															
1980/81.....															
Average.....															

1/ Plus equals net imports and a minus, net exports.

2/ Less than 50,000 metric tons.

3/ Forecasts.

4/ U.S. grain exports to the USSR are shown as USSR imports.

5/ Preliminary.

vesting weather east of the Volga River was generally better than normal.

The substandard quality grain produced last year was also largely confined to that harvested in European USSR. Roughly 60 percent of the total grain area is in European USSR, but this includes almost all of the winter wheat and winter rye. Winter rye probably was damaged most heavily since it is concentrated in the northern half of European USSR, where harvesting conditions were the worst. By September 20, almost half of the grain reportedly remained to be cut in some administrative subdivisions in this area. On the other hand, in Kazakhstan, grain quality (primarily spring wheat) reportedly was exceptionally good.

Grain utilization in the USSR during 1976/77 will return to a more normal pattern than that following the disastrous 1975 grain crop. The most significant change will be a sharp recovery in the amount of grain used for livestock feed. During 1975/76, it is estimated that only about 85 million tons of grain were used for feed, roughly 20 million tons less than in each of the preceding 2 years (table 1). Use of grain for food during 1976/77 is

estimated at 45 million tons. Waste—including excess moisture and trash—is estimated to account for 32 million tons; seed for 27 million tons; and industrial use for 3 million. Carryover grain stocks thus would increase by 20 million tons after having been drawn down sharply during the past 2 years to a level believed to be very low.

The 1976 grain crop will permit Soviet grain trade in 1976/77 to return to a more normal pattern than in 1975/76 (table 2). Grain imports are expected to be less than half of the 26 million tons imported in 1975/76, and will include 6 million tons of U.S. wheat and corn, as called for in the US-USSR 5-year grain agreement which came into force in October 1976. The agreement requires Soviet purchases of at least 6 million tons of wheat and corn from the United States annually. Soviet grain exports in 1976/77 are expected to recover from an insignificant amount in 1975/76, following the disastrous 1975 USSR grain harvest, to a more normal level of 3 to 4 million tons. Drought has increased the 1976/77 grain import requirement of the countries in the northern part of Eastern Europe—the traditional customers for Soviet grain exports. (*Fletcher Pope, Jr.*)

## NEAR-RECORD COTTON CROP

Cotton production in 1976 reached a near-record 8.3 million tons—second only to the 8.4-million-ton output in 1974 and 5 percent above the reduced 1975 crop. The area sown to cotton last year was up by 28,000 hectares and was a new record.

Conditions in 1976 were more favorable for cotton than in 1975. Temperatures were higher than average, but lower than 1975's hot, and also dry, conditions. Water supplies were plentiful in most cotton areas. Hot, dry, high-velocity winds, lasting for 3-4 days at the end of July, did only negligible damage to the cotton crop, since sufficient supplies of irrigation water were available. In 1975, duration of up to 10 days of these winds and a lack of adequate irrigation water supplies caused considerably more damage to the crop.

The April-May 1976 earthquakes in Soviet Central Asia—the USSR cotton belt—caused only slight damage to irrigation canals and did not affect the crop to any great extent. Torrential rains from mid-April to mid-May in some areas did, however, result in major flooding and mud slides, thus necessitating reseeding several thousand hectares of long-staple cotton with medium-staple varieties. Earlier than usual cold, frost, and rain in October and prolonged unfavorable weather during the har-

vest period (as in 1975) were the major factors deterring the otherwise excellent crop from reaching a new record.

Recently available official Soviet data on cotton lint production during the 1964-75 crop years indicate that ratios heretofore applied for cotton lint outturns at gins for seed cotton were too high—probably because of the extent to which mechanical pick up had replaced hand picking. Revision of the Soviet cotton balance appears in table 3. The ginning rates derived from the new information indicate that Soviet cotton ginning rates have trended downward since at least 1969—from a ginning rate of 34.2 percent that year to 31.6 percent in 1974. In 1975, the ginning rate rose again—to 32.1 percent—and lint outturn from the 1975 crop totaled 2.53 million tons. Based on an estimated 31.8 percent ginning rate, lint outturn from the 1976 cotton crop will total about 2.64 million tons—4 percent higher than in 1975 and only about 1 percent below outturn from the record 1974 crop.

The USSR continues to be a net exporter of cotton lint. In calendar year 1975, total exports reached a new record level of 800,000 tons, up 8 percent from the record level in 1974. As in pre-



vious years, East European countries accounted for the bulk of exports in 1975, taking about 400,000 tons or 3 percent more than in 1974. Japan, the single largest buyer in 1972-74, lowered its 1975 purchases to 102,000 tons—a sharp drop of 21 percent from the year-earlier level. The remainder was accounted for largely by the European Community (EC), Cuba, and Bangladesh.

Availability of cotton lint in 1975/76 from the

reduced 1975 crop plus imports totaled 742,000 tons more than estimated domestic utilization—compared with 904,000 in 1974/75. Exports in 1975/76 are estimated at 800,000 tons. Cotton lint from the 1976 crop plus estimated imports will be about 800,000 tons more than projected use in 1977. The near-record crop in 1976 could enable the USSR to maintain cotton lint exports in 1977. (*Angel O. Byrne*)

## SUNFLOWERSEED CROP SHOWS LITTLE IMPROVEMENT

Soviet sunflowerseed production in 1976, at 5.2 million tons, showed little improvement from 1975's extremely disappointing total of 5 million tons. Production remained far below planned output of 7.5 million tons. Exceptionally cool, rainy weather delayed planting over a large portion of the Soviet sunflower area, slowed plant development, and contributed to severe disease damage in the Ukraine, Moldavia, and parts of the Black Soil Zone and Volga Region. Yields in some parts of the Ukraine were reduced by 70 percent. The North Caucasus experienced more favorable conditions, however, with Krasnodar Kray reportedly harvesting a record crop. In most areas, harvesting was so delayed by inclement weather and late maturing of the crop that an estimated half million of the 4.6 million hectares planted in 1976 were abandoned.

Total Soviet vegetable oil production in 1976 was 2.8 million tons, compared with 3.3 million tons in 1975 (table 4). Production from Government-held oilseed supplies totaled almost 2.6 million tons, about 15 percent below 1975 production.

Soviet vegetable oil production from Government-held oilseed supplies in 1977 is forecast to increase to 2.8 million tons. Government sunflowerseed purchases probably will not much exceed 3.8 million tons—equal to procurements from the 1975 crop—because of the poor quality of the seeds this year. The generally dim prospects for 1977 are supported by very low vegetable oil production during September 1976-January 1977, which totaled about 1.34 million tons—the smallest since the 1972/73 processing year (table 21). The small recovery in the size of the sunflowerseed harvest probably will not permit any increase in sunflowerseed oil production since much of the harvest

was of poor quality, with high moisture content and correspondingly low oil content. About 350,000 tons of soybean oil will be produced, mainly from imported beans. Another 200-300,000 tons of vegetable oil—primarily sunflowerseed oil—may be produced from farm holdings of oilseeds.

Soviet trade in oilseeds and oilseed products shifted sharply in 1976. Vegetable oil exports—primarily sunflowerseed oil—probably dropped from the 416,000-ton level of 1975, with relatively little prospect for recovery in 1977. Imports of soybeans rose sharply in 1976, partially in response to lowered availabilities of domestically produced oilmeal from the 1975 sunflowerseed crop. In early July 1976, before the size of the sunflowerseed crop could have been determined, the Soviets made substantial purchases of U.S. soybeans mainly for delivery in 1977. Soviet total soybean imports during fiscal 1976 are estimated at 1.0 million to 1.5 million tons. Imports from the United States during fiscal 1977 are forecast at about 1.2 million. The 1976 purchase suggests that the Soviets may be planning to make regular purchases of soybeans as a means of maintaining or perhaps increasing the protein content in their mixed feeds.

Per capita vegetable oil consumption probably did not increase significantly from the 1975 level. Consumption prospects for 1977 are uncertain, and may depend on the extent to which the Soviets increase vegetable oil imports. A representative of the fats and oils industry of the USSR told members of a 1976 U.S. team studying vegetable oil production in the USSR that, if necessary, the Soviet Union would buy vegetable oil in 1976/77 to maintain domestic supply levels. Further cuts in vegetable oil exports are also possible. (*Judith G. Goldich*)

## LITTLE SUGAR EXPECTED FROM RECORD BEET CROP

Beet sugar output during September 1976-January 1977 indicates that the 1976 sugarbeet crop will yield somewhat less sugar than did the 1974 and

1975 beet crops, even though 1976 production and procurements of sugarbeets were much larger. Sucrose content of the 1976 crop beets apparently

Table 4--Total supply and estimated utilization of vegetable oil, USSR, 5-year averages, 1961-75, and annual, 1960 and 1966-76

Year	Production	Imports	Exports	Domestic supply and distribution					Error
				Total	Food use 1/	Industrial use and waste 2/	Stock change 3/		
					1,000 metric tons				
1960	1,586	76	92	1,570	1,136	600	-68	-98	
Average, 1961-65	2,229	64	193	2,100	1,414	661	27	-1	
1966	2,732	55	456	2,331	1,471	881	--	-21	
1967	3,021	46	707	2,360	1,534	858	-39	7	
1968	3,145	63	770	2,438	1,549	836	4	49	
1969	2,979	41	696	2,324	1,588	813	-30	-47	
1970	2,784	86	372	2,498	1,651	790	10	47	
Average	2,932	58	600	2,390	1,559	836	-11	7	
1971	2,923	94	408	2,609	1,716	767	46	80	
1972	2,827	89	423	2,493	1,733	745	-1	16	
1973	2,677	82	371	2,388	1,823	722	-59	-98	
1974	3,411	51	513	2,949	1,991	800	52	106	
1975	3,344	101	416	3,029	2,009	800	10	210	
Average	3,036	83	426	2,694	1,854	767	10	63	
1976	2,800	4/150	4/300	2,560	5/2,050	4/700	-60	-40	
1977									
1978									
1979									
1980									
Average									

Note: -- means negligible or none.

1/ Includes margarine.

2/ Estimates for 1960-64 are approximate mean of unexplained residual after adjusting supply for food use and stock change. Estimates for 1965-73 are linear trend values of the residuals for these years.

3/ Sum of industrial, wholesale, and retail stocks. Retail stocks apparently exclude margarine.

4/ Estimate.

5/ Assumes per capita consumption of 8.0 kilograms.



was very low and harvesting conditions resulted in an extraordinarily large amount of spoilage of the beets.

Nevertheless, a record 98.6 million tons of sugarbeets were produced in the USSR in 1976—up from the previous record set in 1968, by 4.3 million tons. The 1976 crop also was close to 50 percent larger than the extremely poor 1975 crop, 30 percent above the 1971-75 average, and slightly above the average of 95-98 million tons targeted for 1976-80.

High yields were mainly responsible for the record 1976 crop. The 26.3 tons of sugarbeets harvested per hectare in 1976 were about equal to the record of 26.6 tons in 1968 but exceeded the 1971-75 average by 22 percent. Area planted to sugarbeets in 1976 was 3,754,000 hectares—only 88,000 hectares more than in 1975 and 227,000 hectares, or 6 percent, more than the 1971-75 average.

Abundant moisture in the beet growing areas caused the high yields. Precipitation during May-September 1976 averaged almost 50 percent above normal, ranging from 20 percent above in June to almost double the normal amount in September. Harvesting of the beets reportedly was very difficult because of excess soil moisture and the extraordinarily early arrival of sustained freezing weather. Under such conditions, the harvested and procured beets may have had a lot of dirt or mud clinging to them. Also, as a result of the cold weather, a large quantity of the sugarbeets reportedly were frozen when delivered to the refineries.

A total of 85 million tons of sugarbeets were procured by the Government in 1976—a record 25 percent above the 1971-75 average but only slightly above 1968 procurements (table 18). The 13.6 million tons of beets left on the farms exceed by over 3 million tons, or 30 percent, the previous record amount not purchased. During 1971-75, the amount of beets that were left on farms averaged a little over 10 percent of the total crop, while the amount in 1976 was 14 percent. This appears to be a clear indication of the harvesting difficulties last fall, and that the quality of the 1976 crop was very poor.

Some 5-10 million tons of the 85 million tons of sugarbeets procured probably were not processed

for sugar. In recent years, 2-5 million tons of the beets that were procured were not processed, probably because of spoilage. Problems encountered in beet harvesting probably resulted in two to three times as much spoilage of 1976 crop sugarbeets as normal.

Beet sugar production from the 1976 crop of sugarbeets likely will not be much more than the 7.1 million tons of sugar produced from the 1974 and 1975 beet crops.<sup>1</sup>

Beet sugar output during September 1976-January 1977 totaled only about 6.5 million tons, half a million less than the amounts produced during the corresponding periods in each of the 2 preceding years. The "normal" seasonality of sugarbeet processing and the monthly beet sugar output figures for November 1976-January 1977 suggest that sugarbeet processing after January will probably not provide much more than an additional half million tons of sugar (table 5).

Sugar consumption in the USSR in 1976/77 is estimated at 10.5 million tons. This assumes that the population of 258 million on January 1, 1977, will consume the same amount of sugar as the 41 kilograms consumed per capita in recent years. Thus, beet sugar production likely will fall some 3 million to 3.5 million tons short of domestic requirements.

The shortfall in sugar availability is expected to be made up through imports. Soviet sugar imports in 1977 are forecast at 4 million tons (raw value), including 3.5 million from Cuba and about half a million tons—purchased early in 1977—from the Philippines. Cuba is expected to supply about a million tons more to the USSR than the current annual quota of 2.5 million called for in the 1975 trade agreement between the two countries. The additional Cuban sugar is expected to be available because Cuba reportedly has withdrawn from the international free sugar market until August 1977—based upon a recent report from Havana. (*Fletcher Pope, Jr.*)

<sup>1</sup>All sugar data in this report are refined sugar unless otherwise indicated.

## VEGETABLE OUTPUT DISAPPOINTING; FRUIT PRODUCTION A RECORD

### Potatoes

Potato production in the USSR last year again was mediocre—the third consecutive year of disappointing crops (table 14). Output, totaling 85.1 million tons, was 4 percent below 1975 production, 14

million tons less than planned, and close to 5 million tons less than the 1971-75 average. Potato area in 1976 was 10 percent less than in 1975 and the smallest since World War II.

Unfavorable weather in vegetable-producing regions during the growing and harvesting periods

adversely affected the 1976 crop. The cool, wet summer delayed growth and development, and an early freeze in late September-early October was a major detrimental factor causing large frost damage to the crop. Farmers were advised to separate out the damaged potatoes in order to minimize spoilage and also to salvage as many of the frost-damaged potatoes as possible so that they could be used for feed and industrial purposes.

Government purchases of potatoes from the 1976 crop probably were below the 16.3 million tons planned for and also below the 14.6-million-ton level of 1975. Consequently, availabilities for urban consumers may be inadequate to maintain normal supplies.

The potatoes-for-feed situation will continue to be tight in 1976/77, but should be greatly offset by a boost in feed supplies from the record 1976 grain and other feed crops. In 1975/76, limited supplies from the 1975 potato crop had further aggravated the serious shortages of grain and other feed for the livestock sector.

Potato imports by the USSR have returned to more normal levels in recent years, following the unprecedented record import of over 1 million tons in 1972—a direct result of the serious shortfall in domestic production that year. Imports during 1973-74 averaged about 116,000 tons. In 1975, imports reached somewhat over 140,000 tons.

### Vegetables

The 1976 vegetable crop of 23.5 million tons was about the same as the 1975 output, but 2.5 million tons below plan. Area planted to vegetables was 5 percent less than in 1975 and the smallest since 1971. Although unfavorable weather during the planting and growing periods restrained production, the onset of the early freeze last fall was the

major damaging factor. Government purchases of fresh vegetables in 1976 reached 16 million tons, 2.1 million tons more than in 1975 but again were below plan.

In the past 5 years, Soviet imports of fresh vegetables (excluding potatoes) have ranged from a high of 269,000 tons in 1972 to a low of 144,000 tons in 1975—the lowest in the past 10 years. Average imports during 1971-75 totaled 194,000 tons, 21 percent larger than the 1966-70 average. Bulgaria, Egypt, Romania, and, in more recent years, North Korea have been the major suppliers. Soviet imports of canned vegetables averaged 833 million cans (standard weight unit) during 1971-75. In 1975, these imports totaled 804 million cans, the lowest level since 1971. Primary suppliers are Bulgaria, Hungary, and Romania.

### Fruit

Production of fruit (including grapes) in 1976 reached a record level of 15 million tons, about 5 percent above 1975 output. Grape production probably was a near record or may have exceeded the previous record of 5.4 million tons in 1975.

Soviet imports of fresh fruit totaled a near-record 860,000 tons in 1975. Citrus fruits accounted for more than half of the total. Major suppliers of fresh fruit in 1975 were Hungary, Egypt, the People's Republic of China, and Morocco. In the past 3 years, the USSR has stepped up imports of lemons from the United States—from an initial import of 5,178 tons in 1973 to a purchase of 10,000 tons in early 1976. Soviet imports of dried fruit reached 118,000 tons in 1975, a sharp 24-percent increase above 1974 and the largest level of imports in the past 10 years. Major suppliers were Iran and Iraq. For the first time, in 1976, the USSR purchased over 3,000 tons of dried prunes from the United States. (*Angel O. Byrne*)

## LIVESTOCK PRODUCTION DOWN SHARPLY

### Livestock Inventories

The USSR began 1977 with some improvement in overall livestock inventories compared with the largely reduced inventories on January 1, 1976 (table 6), which resulted from the heavy slaughtering—primarily of hogs and poultry—in 1975 (table 20).

The largest gains in 1976 were made in hog and poultry numbers. The January 1 hog population, at 63 million head, was up 9 percent from a year earlier but still 13 percent short of the record January 1, 1975, inventory. The increase occurred in

the socialized sector. In the private sector, the hog population dropped by 500,000 head.

January 1, 1977, total poultry inventories have not been reported. Poultry numbers in the socialized sector were reported, however, at 438 million head—up 18 percent from a year earlier and 9 percent above the previous record on January 1, 1975 (table 16). The recovery in the private sector probably was not as good as in the socialized sector. It is estimated that total poultry inventories on January 1, 1977, were substantially above the 735-million-head inventory of a year earlier and very

Table 6--January 1 livestock numbers, USSR, 1955 and 1960-77

Year	Cattle		Hogs		Sheep	Goats	Horses	Poultry
	Total	Cows <u>1/</u>	Total	Sows				
	<u>Million head</u>							
1955 .....	56.7	26.4	31.0	NA	99.0	14.0	14.1	<u>2/</u> 375.0
1960 .....	74.2	33.9	53.4	4.22	136.1	7.9	11.0	514.3
1961 .....	75.8	34.8	58.7	4.70	133.0	7.3	9.9	515.6
1962 .....	82.1	36.3	66.7	NA	137.5	7.0	9.4	542.6
1963 .....	87.0	38.0	70.0	NA	139.7	6.7	9.1	550.4
1964 .....	85.4	38.3	40.9	NA	133.9	5.7	8.5	449.1
1965 .....	87.1	38.8	52.8	NA	125.2	5.4	7.9	456.2
1966 .....	93.4	39.3	59.6	4.11	129.8	5.5	8.0	490.7
1967 .....	97.1	40.2	58.0	3.81	135.5	5.5	8.0	516.3
1968 .....	97.2	40.4	50.9	3.36	138.4	5.5	8.0	528.4
1969 .....	95.7	40.1	49.0	3.30	140.6	5.6	8.0	546.9
1970 .....	95.2	39.4	56.1	3.62	130.7	5.1	7.5	590.3
1971 .....	99.2	39.8	67.5	4.04	138.0	5.4	7.4	652.7
1972 .....	102.4	40.0	71.4	4.02	139.9	5.4	7.3	686.5
1973 .....	104.0	40.6	66.6	3.95	139.1	5.6	7.1	700.0
1974 .....	106.3	41.4	70.0	4.03	142.6	5.9	6.8	747.7
1975 .....	109.1	41.9	72.3	4.02	145.3	5.9	6.8	792.4
1976 .....	111.0	41.9	57.9	3.65	141.4	5.7	6.4	734.9
1977 .....	110.3	42.0	63.0					<u>2/</u> 795.0

NA = not available.

1/ Revised series beginning 1966; excludes cows placed on feed for slaughter.2/ Estimate.

probably equaled or exceeded the record 792-million-head inventory on January 1, 1975.

Cattle inventories, at 110 million head, were 700,000 head less than a year earlier. The largest decrease occurred in the private sector, where inventories dropped by 600,000 head. Socialized sector cattle inventories remained at almost the year-earlier level.

Sheep and goat inventories continued to decline during 1976. Total inventories, at 145 million head, were down by 2 million head or 1 percent. The decrease was divided about equally between the socialized and private sectors.

### Meat

Meat production in 1976 fell 10 percent to the lowest level in 5 years. Output, totaling 13.4 million tons, met the lowered plan, but was 4 percent below the 1971-75 average (table 7). The 1976 decline was a result of the reduced livestock inventories on January 1, 1976, and lighter slaughter weights of livestock resulting from extended use of maintenance rations in the winter of 1975/76 because of low feed supplies. Furthermore, less slaughtering was carried out during the year in an attempt to maintain and/or build up livestock numbers. Government purchases of total meat (live weight) reached 14.7 million tons, 12 percent less than in 1975, 4 percent below 1971-75 average purchases, and the lowest in 3 years (table 19).

Production of all major types of meat was down from year-earlier levels, except for beef, which remained at the 1975 level of 6.4 million tons. The largest declines were in pork and mutton output, which fell 25 and 18 percent, respectively. Poultry meat production dropped 7 percent below the year-earlier level (fig. 2).

Soviet imports of meat and meat products in 1975 reached 515,000 tons, the same as the record 1974 level (table 27). These large imports were related more to the USSR acting as an alternate market for East European exporters than to a decline in Soviet domestic meat output and supply. The continuing restrictions by the European Community (EC) on cattle and beef imports caused a buildup of supplies in East Europe. Furthermore, the availability of relatively low-priced EC and East European beef resulted in boosted Soviet purchases. Despite a decline in domestic meat output in 1976, Soviet purchases for delivery that year dropped to an estimated 350,000-400,000 tons—with western countries accounting for about 180,000 tons. Major western suppliers of beef, veal, and mutton were Argentina, Australia, France, Finland, and New Zealand. East European countries accounted for the remainder. Poultry meat pur-

chases in 1976 are estimated at 65,000 tons, with western countries accounting for about 8,000 tons, and East European countries accounting for the balance. Western country suppliers were West Germany, the Netherlands, Denmark, and for the first time, the United States, which accounted for over 2,000 tons.

Soviet purchases of meat and poultry from western markets in late 1976 for delivery in 1977 totaled about 92,000 tons, with the United States supplying 3,000 tons of poultry.

The lower level of total meat and meat product imports in 1976—given the need to boost imports to offset the decline in domestic output and supply—undoubtedly was related to the USSR's hard-currency problems. Although this situation may ease in 1977, Soviet imports of meat and meat products could again remain at a lower level. The domestic meat situation is expected to improve somewhat this year because of the larger supplies of grain and roughages from the 1976 record crops and the improved livestock inventories.

### Milk and Dairy Products

Milk production in 1976, at 89.1 million tons, was down 2 percent from 1975 but was 2.1 million tons more than the lowered plan, and the third largest on record. Average milk yields were down sharply during the first half of 1976 because of low supplies of feed for cow herds. During the second half of the year, milk yields improved in the wake of good pastures and boosted feed supplies. Total Government milk purchases in 1976 reached 56.2 million tons, about the same as in 1975.

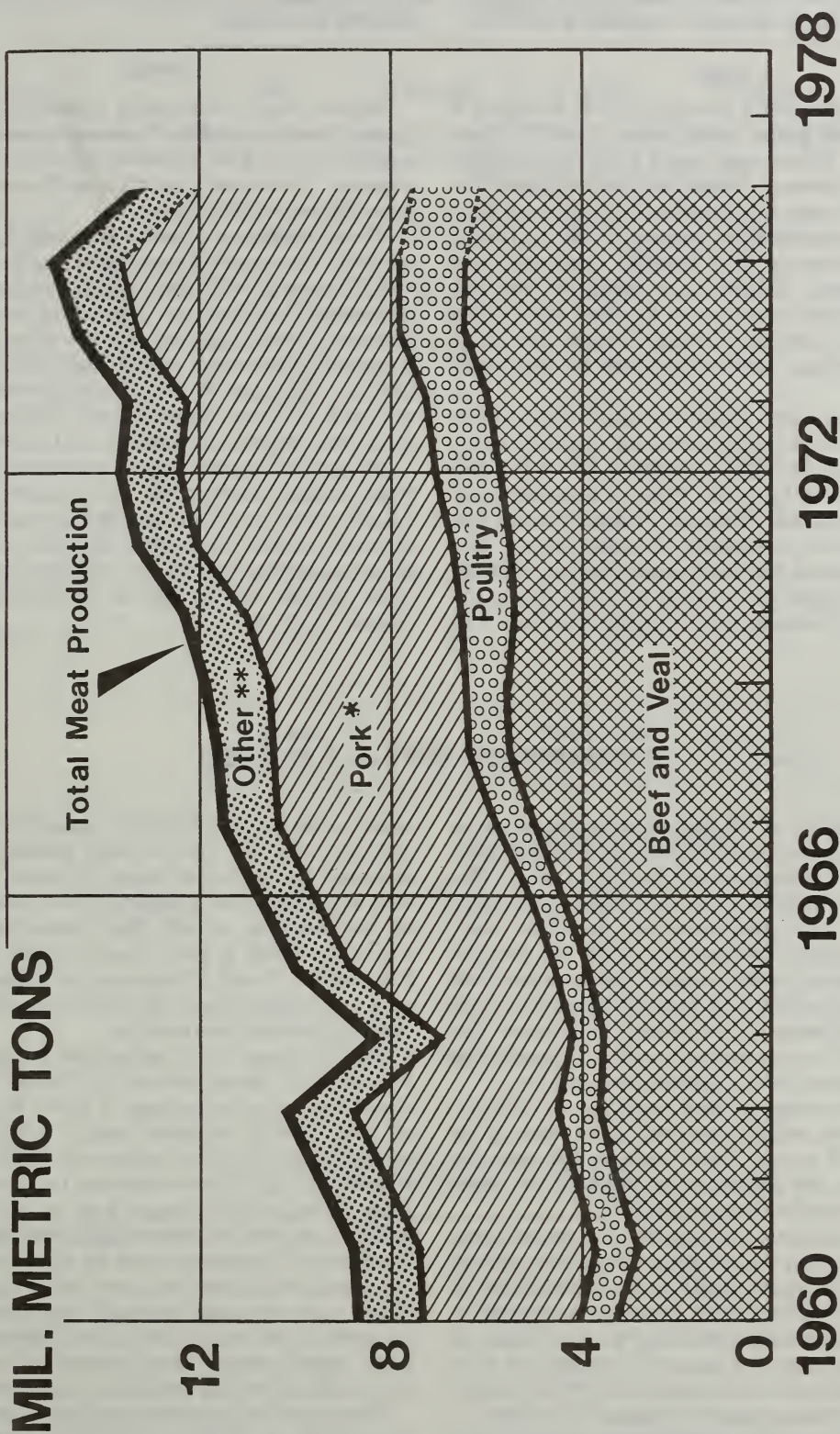
Factory output of butter totaled 1.3 million tons, a 3-percent increase over 1975 output. Following the unprecedented 230,000-ton import of subsidized EC butter in 1973, Soviet butter imports in 1974-75 dropped to 11,000-12,000 tons—somewhat above the more normal levels of years prior to 1973. No major Soviet purchases of butter were announced in 1976. In March 1977, the Soviets purchased 36,000 tons of butter at highly subsidized prices from the European Community (EC). Industrial output of whole milk products dropped 1 percent in 1976 to 23.4 million tons. Dry milk and cream production increased 3 percent, reaching a record 327,000 tons. Soviet imports of dry milk and cream averaged about 23,000 tons during 1971-75. In 1976, the Soviets reportedly negotiated to purchase about 20,000 tons of nonfat dry milk from the EC. Factory output of cheese last year probably remained at about the 1975 level of 562,000 tons. Soviet cheese imports have remained at somewhat over 7,000 tons in most recent years. In early 1976, the USSR signed a new 5-year agreement with Finland for the pur-

Table 7--Production of principal livestock products, USSR,  
5-year averages, 1966-75, and annual, 1966-76

Year	Meat						Milk	Wool 2/	Eggs
	Total	Beef and veal	Pork 1/	Mutton, lamb, and: goat	Poultry	Other			
				-- 1,000 metric tons --					Millions
1966	10,704	4,377	4,465	933	745	184	75,992	371	31,672
1967	11,515	5,081	4,456	1,028	764	186	79,920	394	33,921
1968	11,648	5,513	4,079	1,029	817	210	82,295	415	35,679
1969	11,770	5,569	4,094	969	866	272	81,540	390	37,190
1970	12,278	5,393	4,543	1,002	1,071	269	83,016	419	40,740
Average	11,583	5,187	4,327	992	853	224	80,553	398	35,840
1971	13,272	5,536	5,277	996	1,183	280	83,183	429	45,100
1972	13,633	5,722	5,445	923	1,237	306	83,181	420	47,910
1973	13,527	5,873	5,081	954	1,295	324	88,300	433	51,154
1974	14,620	6,384	5,515	974	1,420	327	91,760	462	55,509
1975	14,968	6,400	5,600	1,100	1,500	368	90,804	467	57,463
Average	14,008	5,983	5,384	989	1,327	321	87,446	442	51,427
1976	13,400	6,400	4,200	900	1,400	500	89,100	432	55,600
1977									
1978									
1979									
1980									
Average									

1/ Including pork fat.  
2/ Greasy basis.

# USSR: PRODUCTION OF MEAT



\* INCLUDING PORK FAT. \*\* PRIMARILY MUTTON, GOAT, HORSE, AND RABBIT MEAT.

Figure 2

chase of up to 22,000 tons of nonfat dry milk and 2,000 tons of cheese annually—beginning in 1976.

### Eggs

Egg production fell 4 percent in 1976, breaking a streak of record gains made during 1966-75. Total output of 55.6 billion eggs was 1.9 billion less than in 1975 but 5 percent above the lowered plan. The decline in 1976 was due largely to a 7-percent drop in poultry inventories on January 1, 1976. Heavy culling of layers in 1975 possibly continued into the first months of 1976 as a result of the continuing tight feed situation in the first half of the year. Government purchases of eggs last year totaled 32.9 billion, almost the same as the record 1975 level.

Despite increased domestic egg output in the past several years, Soviet egg imports have remained relatively high—averaging about 854 million eggs during 1971-75. Primary suppliers continue to be Poland, Finland, Hungary, and Bulgaria. USSR consumption of eggs, which has trended upward in the past several years, reached a record 215 eggs per capita in 1975. With the decline in 1976 output, it is probable that per cap-

ita consumption dipped somewhat unless larger imports were made.

### Wool

Soviet wool production totaled 432,000 tons (greasy basis) in 1976, 7 percent below the record output in 1975 and 2 percent less than the 1971-75 average. Government purchases of wool were down from the record 1975 level.

Soviet imports of wool (scoured) have trended upward for several years and reached a record 109,000 tons in 1975. Major suppliers continue to be Australia, New Zealand, Argentina, and Mongolia. Exports of wool (scoured), on the other hand, have continued downward from a high of 28,000 tons in 1966 to 7,000 tons in 1975. Czechoslovakia received the bulk of these exports, with Poland, Bulgaria, and Great Britain accounting for the remainder.

Soviet net imports of wool (scoured) have more than tripled since 1966. Net imports of a record 102,000 tons in 1975 equaled one-third of total domestic output (table 26). Total Soviet wool supplies (scoured) available for domestic use increased from 254,000 tons in 1966 to 416,000 tons in 1975. (*Angel O. Byrne*)

## RECORD FEED SUPPLIES STORED

The 1976 output of all major feeds except potatoes was above last year's disastrous levels, with most at record or near-record levels (table 8). The record grain harvest was the most dramatic improvement, but production of haylage, and, probably, nongrain concentrates also set records. Cool, wet weather during most of the summer held down hay production and raised questions about the quality of some of the stored roughages. But the apparently strong performance in concentrates indicates a record level of protein availability.

Aggregate nonpasture feed supplies for 1976/77, in terms of oat equivalent feed units, are up an estimated 20-25 percent from the very low year-earlier level. They are estimated to be about the same as the record availabilities of 1973/74.

Grain available for feed use is at a record level, but the actual feed use of grain (including pulses) is forecast to be about equal to the amount fed in 1973/74 and 1974/75. It will, however, be roughly a quarter above the reduced 1975/76 level. Grain is expected to account for about 35 percent of total nonpasture feed units consumed in 1976/77 and to contribute the largest share of digestible protein.

The total harvest of roughages, measured in feed units, is well above the 1975 level and seems

close to the record 1973 crop (table 15). Preliminary reports indicate that haylage production in 1976 exceeded the previous record by more than 5 percent and that straw production was about the same as the previous record. Hay production, however, was only about 6 percent above 1975's low level. Production of both silage corn and feed roots was at a near-record level. A record amount of sugar-beet pulp should be available.

Seeded forage crops accounted for about 30 percent of total seeded area in 1975 and for probably about the same percentage in 1976. After 20 years of fairly steady increase, seeded forage crop area peaked at 66.1 million hectares in 1972. It fell back slightly in 1973 but began to increase again in 1974. Total seeded forage area in 1975 was 65.6 million hectares and was roughly the same in 1976. Grasses and clovers account for about two-thirds of the forage crop area, and corn for most of the rest. Silage corn area has generally been declining from its peak in the early 1960's, but increases in yield have largely maintained production levels. Tame hay yields have also gradually increased.

The supply of nongrain concentrates is expected to continue to increase in 1976/77 (table 8). Total nongrain concentrates generally account for only a

Table 8--Feed output, USSR, 1971-76

Year	Hay	Haylage	Straw	Silage	Feed roots
<u>Million metric tons</u>					
1971 .....	57.9	20.7	86.9	149.4	30.0
1972 .....	54.9	35.3	82.9	146.7	31.9
1973 .....	54.8	49.2	94.3	197.7	38.3
1974 .....	53.9	58.3	98.9	170.3	34.6
1975 final .....	46.5	47.0	79.8	144.3	27.2
1975 October 13 .....	44.8	47.3	73.1	133.6	12.0
1976 October 11 .....	47.3	62.5	89.0	182.7	10.5
1976 November 19 .....	NA	NA	NA	210.0	NA
<u>1,000 metric tons</u>					
	Oilseed meal	Fishmeal	Meat and bonemeal	Alfalfa-clovermeal	Feed yeasts
1971 .....	3,756	395	327	1,391	314
1972 .....	3,881	435	362	1,746	365
1973 .....	4,012	486	368	2,494	446
1974 .....	3,975	538	414	3,200	540
1975 .....	4,187	635	482	4,000	673
1976 .....	NA	<u>1</u> /650	<u>1</u> /398	5,400	NA

NA = Not available.

1/ Plan.

little more than 5 percent of nonpasture feed units, but about three times that share of digestible protein supplies. Soybean imports should compensate

for low oilseed meal production from the disappointing domestic sunflower harvest this year. (Gregory D. Miller)

## SOVIET MIXED FEED OUTPUT RISING

Industrial production of mixed feed reached record levels in the Soviet Union in 1976 (table 24). State plants produced 40.4 million tons of mixed feed, and interfarm associations and other industrial facilities added 5.6 million tons, for a total of 46 million tons of industrially produced feed. Collective and state farms and other enterprises probably produced another 3 or 4 million tons, bringing total mixed feed availability in 1976 to about 50 million tons. Total production in 1975 was 45 million tons, of which 37 million tons came from state plants, 4 million from other industrial facilities, and 4 million from farms and other miscellaneous sources. State industrial enterprises almost met their 1976 mixed feed production plan, but the farm and interfarm sector lagged behind their goals (table 24).

Swine and poultry are the main consumers of mixed feed. A U.S. delegation in 1975 was told that plans that year called for swine to receive 55 percent of all mixed feed, poultry 26 percent, cattle and sheep 18 percent, and fish 1 percent.

Industrial production of mixed feeds in the USSR is carried out by enterprises under the Ministry of Procurement. This Ministry is responsible for all Government grain and oilseed purchases. It obtains other inputs from a variety of sources, including the Ministry of Food Industries and Exportkhleb, the Soviet grain trading organization. There are currently about 600 plants in the Ministry of Procurement mixed feed system, with about 100 more scheduled for completion by 1980.

The state mixed feed plants produce two types of products: (1) full-ration feeds consumed directly by

animals and (2) premixes containing protein-vitamin supplements. The latter are sold to collective and state farms and state and interfarm livestock complexes which have their own mixed feed production machinery, and to interfarm mixed feed enterprises. The farms, complexes, and interfarm organizations are supervised by the Ministry of Agriculture. The farms and other enterprises combine the additives with locally produced grain and other inputs to produce the final product. Production of mixed feed using local inputs and purchased additives can be as much as 15 to 20 percent cheaper than purchasing ready-made feed from the state. The exact saving, if any, will depend on the cost of transportation, electricity, and so forth. The official norms say that 1 ton of premixes should suffice for 6 tons of mixed feed. A June 1976 article in *Zhivotnovodstvo*, the major Soviet journal on animal husbandry, indicates, however, that the actual conversion rate is somewhat lower.

The 1976-80 plan calls for industrial production of mixed feed to reach 77 million tons in 1980. The increased grain stocks following the 1976 bumper crop and the steady increase in production of non-grain concentrates will ease the accomplishment of this goal. Limited oilseed meal supplies, however, have slowed the expansion of the mixed feed industry. Even if the trend toward reducing the share of oilseed meal in mixed feed continues, the Soviet Union will have to increase its imports of soybeans and/or oilseed meal if it is to meet the 1980 target. (Gregory D. Miller)

## FOOD CONSUMPTION SLIPS

Consumption of meat and several other major agricultural products dropped in the USSR in 1976 (table 9). Sharply lowered output of most products as a result of the 1975 drought was not offset by greatly increased imports. Meat consumption slumped to an estimated 54 kilograms per person, down sharply from the 1975 level of 57 kilograms. In partial response to sharply lower meat availabilities, so-called "meatless Thursdays" were instituted in the Soviet Union, including the capital,

Moscow. In addition, changes were reportedly made in the composition of sausage to reduce its meat content.

Fish consumption per capita increased about 10 percent as fish were used to substitute for meat. A wide variety of frozen, fresh, and salted fish was available in local markets, some of it imported. Consumption of eggs, potatoes, and vegetables dropped slightly, while milk and milk products and sugar consumption remained at about the 1975

Table 9--Per capita consumption of selected food products, USSR, 5-year averages, 1966-75; annual, 1950, 1960, and 1970-76

Year	Meat and fat	Fish and fish products	Milk and milk products	Eggs	Sugar	Vegetable oil	Potatoes	Grain 2/	Vegetables: and melons	Fruits and berries
	Kilograms			No. of eggs	Kilograms					
Consumption norm .....	82	18.6	405	292	40.0	9.1	97	110	146	113
1950 .....	26	7.0	172	60	11.6	2.7	241	172	51	11
1960 .....	40	9.9	240	118	28.0	5.3	143	164	70	22
1970 .....	48	15.4	307	159	38.8	6.8	130	149	82	35
Average, 1966-70 ....	47	14.3	287	144	37.2	6.5	132	150	78	NA
1971 .....	50	14.8	300	174	39.5	7.0	128	147	85	39
1972 .....	52	15.1	296	185	38.8	7.0	121	145	80	36
1973 .....	53	16.1	307	195	40.8	7.3	122	143	85	41
1974 .....	55	16.5	316	205	41.0	7.9	121	142	87	37
1975 .....	57	16.8	315	215	40.8	7.9	120	141	87	37
Average .....	53	15.9	307	195	40.2	7.4	122	144	85	38
1976 3/ .....	54	18.5	315	214	41	8.0	120	145	87	37
1977 .....										
1978 .....										
1979 .....										
1980 plan .....	60	NA	330	225	43	NA	115	140	113	50
Average .....										

Note: Consumption norm is the level of consumption recommended by the Institute of Nutrition, Academy of Sciences, USSR.  
NA = Not available.

1/ Including milk equivalent of butter.

2/ Flour equivalent.

3/ Estimates.

level. Vegetable oil consumption probably did not increase significantly. Grain consumption (in flour equivalent) probably increased despite the very poor grain harvest of 1975. Imported grain was available for milling into flour. Milling rates were probably boosted to increase flour output from the available grain. Excellent supplies of bread were seen in stores in the fall of 1976 as grain from the record 1976 crop became available.

Current indications are that consumption of meat, milk, and eggs will recover somewhat in 1977. Consumption of sugar should hold about steady with sugar purchases from Cuba and the Philippines offsetting the shortfall in beet sugar output. Grain and potato consumption should hold steady or drop off slightly. Vegetable consumption may be about the same as 1976's reduced level, but this will depend partly on the 1977 harvest.

Plans for 1977 consumption have not been announced, but the general outline for the tenth 5-year plan indicates that some improvement in food consumption can be expected. Although pro-

curement price increases for major agricultural products have been announced, there have been no indications that retail prices will be increased. This could increase the State's already heavy food price support burden. The chairman of the USSR State Price Committee has stated that the subsidy for milk and meat prices in 1975 totaled 19 billion rubles.<sup>2</sup>

Despite subsidized milk and meat prices, Soviet consumers still spend a very large share of their disposable income on food. In 1975, about half of personal disposable income was spent on food and beverages, including slightly more than one-third on food. Disposable personal income rose by about one-quarter during the ninth 5-year plan, but expenditures on food and beverages as a share of disposable income in 1975 were almost the same as in 1970 so that total yearly outlays on food increased by about 100 rubles per person. (*Judith G. Goldich*)

<sup>2</sup>*Pravda*, January 5, 1977, p. 2.

## INVESTMENT AND INPUTS LEVEL OFF IN 1976

### Investment Slightly Exceeds Plan

Capital investment in agriculture by Government agencies and collective farms totaled 32.1 billion rubles in 1976, 2 percent above plan and 4 percent above the 1975 level. Government agencies provided 21 billion rubles of total agricultural investment, while collective farms contributed 11.1 billion. In 1975, the totals were 20.2 billion and 10.8 billion, respectively. The 1976 total represents a decline in the rate of growth of agricultural investment. Agriculture's share of total investment in the national economy has stabilized at about 27 percent. It first reached this level in 1974 and is planned to remain there through 1980.

Capital productivity in agriculture has fallen sharply in the past decade. The growth rate in agricultural investment has far outrun the growth rate in agricultural output. One Soviet economist calculates, for example, that the productivity of agricultural capital fell 25 percent during the ninth 5-year plan, and that it will probably fall an additional 12 percent by 1980.<sup>3</sup> The trend is expected to reverse itself in the 1980's as more long-term construction and modernization projects become fully

operational. This cycle has already been completed in the poultry industry.

Most of the agricultural investment in 1976 went to land improvement, construction and expansion of livestock facilities, and purchase of new machinery. This pattern should continue through the end of the current 5-year plan in 1980 as the Soviets attempt to increase production efficiency and raise labor productivity. About 10 percent of total investment went to improve rural housing and schools and to provide other benefits, such as improved medical care and social amenities, to rural residents.

Investments in agriculture in 1977 are planned to be 32.7 billion rubles, only 2 percent above 1976. The average annual increase in agricultural investment during the ninth 5-year plan was 9.6 percent. Government agencies will increase their 1977 contribution to 22.1 billion rubles, while collective farms will provide the remaining 10.6 billion. Investment in construction of plants for manufacture of agricultural inputs—including machinery, fertilizer, other chemical products, mixed feed, and other items—will probably remain around 9 billion rubles. Land improvement and construction of new livestock complexes for poultry, swine, and cattle will remain high-priority projects. The plan also calls for continuing investment to develop the Non-Black Soil Zone of the RSFSR. (*Gregory D. Miller*)

<sup>3</sup>N. Golovanev, "Kapitalnye vlozheniya v selskoye khozyaystvo i zadachi povysheniya ikh effektivnosti," *Planovoye Khozyaystvo*, No. 9, 1976, p. 42.

## Machinery

Deliveries of machinery to agriculture were, on balance, disappointing in 1976. Truck and tractor deliveries were slightly below 1975 deliveries and 3-4 percent below the 1976 plan. Agriculture received a total of 264,000 trucks and 368,000 tractors in 1976, compared with 269,000 and 370,000, respectively, in 1975. Deliveries of grain combines, at 98,000 units, were up 6,000 units from 1975 and were 1,000 units above plan. The total value of machinery delivered to agriculture, excluding trucks and tractors, was 3.9 billion rubles, roughly equal to the plan.

The current 5-year plan calls for total 1976-80 deliveries of 1.9 million tractors, 1.35 million trucks (including specialized vehicles), and 538,000 grain combines. The unfulfilled 1976 plan called for deliveries of 380,000 tractors and 270,000 trucks and other vehicles. These levels, if maintained for 5 years, would have fulfilled the 1976-80 plan. Somewhat higher deliveries will now be necessary if the 1976-80 plan is to be met. Annual deliveries of grain combines must average 110,000 per year over the next 4 years to meet the plan, implying a large increase in production of these machines by 1980.

The Soviets are striving to improve repair and maintenance facilities, increase the availability of spare parts, extend the useful lifetimes of equipment, and increase the efficiency with which it is used. The great majority of machinery delivered to agriculture goes for replacement of, not net additions to, working inventories. In the ninth 5-year plan, for example, agriculture received 1,667,000 tractors but increased inventories by only 359,000, about 22 percent of deliveries. Similarly, agriculture received 449,000 grain combines in the same period, but increased inventories by only 65,000, or less than 15 percent of deliveries. (*Gregory D. Miller*)

## Irrigation and Drainage

Soviet investment for land development and related facilities in 1976 reached 6.6 billion rubles, the same as in 1975. Irrigation of 750,000 hectares of new land was completed—almost 14 percent below plan, about half a million hectares less than in 1975, and the lowest level since 1971. In 1977, the Soviets plan to commission 822,000 hectares of newly irrigated land.

Drainage was carried out on 720,000 hectares of wet land in 1976—22 percent below plan, almost 300,000 hectares less than in 1975, and the lowest level since 1965. In 1977, it is planned to carry out drainage on 882,000 hectares of wet land.

In August 1976, the Soviets issued a new decree on measures to be taken during 1976-80 for further

expansion of irrigated and improved land, and for more effective use of reclaimed land. Operations are to accelerate in establishing large irrigated zones for grain growing in the arid areas of the Volga Region, in the North Caucasus, and in the Ukrainian Steppes. Barley, oats, and rye sowing is to expand on irrigated and drained land in the Baltics, Belorussia, the Ukraine, the Non-Black Soil Zone, and other areas of the RSFSR. Corn production is to be expanded on irrigated land in Central Asia, the Transcaucasus, Kazakhstan, the Ukraine, Moldavia, and the RSFSR; also, corn yields in these regions are to increase. Commercial output of vegetables is to increase on irrigated lands and production of early vegetables is to expand in the Volga-Aktyubinsk wet lands, North Caucasus, southern Ukraine, Transcaucasus, Moldavia, and parts of Central Asia. Soybean production is to expand on improved land in the Far East, and soybeans are to be cultivated on irrigated land in southern areas of the RSFSR and the Ukraine, in Moldavia, and the Transcaucasus. Sugarbeet output is to increase on irrigated land in Kazakhstan and Kirgizia, and new beet-growing areas are to be established on irrigated land in the more suitable areas of the Volga Region, North Caucasus, southern Ukraine, and Moldavia. Reclamation work is to be implemented to increase output of flax, tea, tobacco, sorghum, fruits and berries, and grapes.

Furthermore, the decree includes provisions for resolving the long-standing problem of providing water to Central Asia, Kazakhstan, and parts of the Volga Region, North Caucasus, and southern Ukraine. In the first stage of this work, technical and economic documents are to be drawn up on the design and construction of installations for partial diversion of Siberian rivers (such as the Ob, Yenisey, and Irtysh) to Central Asia and Kazakhstan, and partial diversion of northern rivers (such as the Pechora and Kama) to the river basins of the Volga Region.

According to the decree, during 1976-80, the Soviets plan to invest almost 39 billion rubles in reclamation and land development for agriculture. This total will include somewhat over 26 billion rubles for construction and repair work. (*Angel O. Byrne*)

## Grain Storage

Elevator capacity totaling 4.3 million tons was completed in 1976, slightly more than construction in 1975 but 13 percent below the 4.96-million-ton plan. Total elevator capacity is estimated at about 37 million tons, up sharply from the reported total of 25.1 million tons in 1971. Newly constructed warehouse capacity at grain procurement points and on farms totaled 5.2 million tons, compared

with the 6.6 million tons completed in both 1974 and 1975.

Total off-farm grain storage capacity, including both warehouses and elevators, was estimated at 140-145 million tons by a U.S. grain storage study team which visited the USSR in 1976. On-farm storage is estimated at around 100 million tons. On-farm facilities are used to store grain for seed and other farm uses, and are not a part of the Ministry of Procurement system.

The Soviets have recognized the need for significantly expanding their grain storage capacity, which apparently is also used for storing domestically produced oilseed. Limited state-operated storage capacity has forced the Soviets to store some procured grain in unprotected, open piles. In a very wet year, such as 1973 or 1976, when high-moisture grain is produced and purchased, a fairly large proportion of procurements are subject to spoilage or quality loss.

In January 1975, the Soviets decreed a 3.5-billion-ruble investment during the tenth 5-year plan to build 40 million tons of off-farm storage capacity, including 34 million in silos. The 40-million-ton construction plan, however, was scaled down somewhat when the "Basic Directives for the Development of the National Economy, 1976-1980" were released late in 1975. The plan called for construction of only 30 million tons of grain storage, all of it in silos. Members of a U.S. delegation to the Soviet Union studying grain storage were told that no more warehouse capacity was to be built within the state sector. However, substantially less than the already reduced plan for 30 million tons of storage will be completed by 1980 if the present construction rate does not rise sharply.

Construction in 1977 is planned at 5.5 million tons, according to an article in the Soviet weekly journal, *Ekonomicheskaya Gazeta*, published in March 1977. The bulk—more than half—of new capacity is allocated to the RSFSR. To facilitate

construction both in 1976 and during the 1976-80 period, the Soviets have turned to the use of prefabricated silo construction. The precast panels used in prefabricated construction need only to be erected, bolted, and grouted together and thus minimize the amount of skilled labor required to complete the project.

Precast construction is quite common in Soviet building. Nevertheless, defects in the manufacture of the prefabricated components and in the actual construction work occur. These defects contribute to cracks in the bins, leaks, and other problems which may result in damage to grain in storage and may account for shortened lifespans of the structures themselves. (*Judith G. Goldich*)

### Agricultural Chemicals

Delivery of agricultural chemicals to Soviet farms continued to increase in 1976 (table 22). Mineral fertilizer deliveries totaled 77.1 million tons (in terms of standard units), including 2.7 million tons of feed additives. Deliveries increased about 2 percent over 1975. Total deliveries to agriculture were 1.5 million tons less than originally planned. Total fertilizer production of 92.3 million tons was up 2.1 million tons from 1975 but still was 2.2 million tons below the 1976 plan. Deliveries to agriculture represented about 84 percent of total fertilizer output, roughly the same as in 1975, and 86 percent of the total increase in fertilizer production.

Production of chemicals for the protection of plants such as weed-killer and insecticide totaled 456,000 tons (in standard units) in 1976, about 4 percent more than in 1975.

Construction of mineral fertilizer production capacity slowed during 1976. Work was completed on facilities having a production capacity of 7.3 million tons, compared with 11.6 and 7.0 million tons in 1975 and 1974, respectively. (*Gregory D. Miller*)

## AGRICULTURAL IMPORTS BOOST TRADE DEFICITS

### Trade Developments with the United States

U.S. agricultural exports to the USSR jumped to close to \$1.6 billion in calendar year 1976—up one-third from 1975—despite lower prices for U.S. wheat, corn, and rice (table 10). Grain continued to account for the largest single value share of shipments, although a substantial rise in soybean exports also occurred. The value of wheat exports declined sharply to \$250 million, down 63 percent from the previous year. Corn sales jumped to more than \$1.1 billion—about equal to the total value of all grain imported from the United States in 1975.

Rice exports amounted to \$15 million as the Soviets took advantage of favorable prices for rice.

U.S. soybeans valued at \$126 million were exported to the USSR in 1976. About two-thirds of the volume total had been shipped by the beginning of June, most of it purchased in response to the very disappointing 1975 domestic sunflowerseed crop. In early July 1976, the Soviets contracted for 800,000 tons of U.S. soybeans and an additional 700,000 tons of optional origin beans, which could be transferred to U.S. origin. By the time soybean shipments resumed in October, how-

Table 10--U.S. agricultural trade with the USSR, 1971/72 - 1975/76

Commodity	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78
Million dollars							
Exports <u>1/</u> :							
Wheat .....	0.7	566.4	219.0	194.2	606.6		
Coarse grains <u>2/</u> .....	146.2	236.2	344.0	174.8	1,225.8		
Corn .....	106.5	209.5	283.5	171.9	1,217.3		
Soybeans .....	<u>3/</u>	134.1	7.1	<u>3/</u>	63.2		
Cattle hides .....	6.5	8.3	3.2	8.1	1.8		
Fruits, nuts, and berries ..	1.2	2.2	4.5	8.2	4.7		
All others .....	2.4	7.2	7.0	24.4	27.0		
Total .....	157.0	954.4	584.8	409.7	1,929.1		
Imports:							
Furskins .....	2.7	3.6	3.4	3.5	4.9		
Bristles .....	--	0.4	0.6	0.1	--		
Gelatin .....	--	0.1	0.4	0.2	0.1		
Casein and casein glue ....	--	--	0.4	2.5	1.6		
All others .....	0.4	0.5	1.2	1.2	2.0		
Total .....	3.1	4.6	6.0	7.5	8.6		

-- = Insignificant or none.

1/ Includes transshipments through Canada.2/ Includes corn, rye, barley, oats, and sorghum.3/ Less than \$50,000.

ever, some of the U.S.-origin bean contracts had been cancelled. It is believed that the 1976 Soviet purchases, which were made before an adequate assessment of the domestic sunflowerseed crop most likely could have been made, were in response to increased demand for livestock feed protein, and that purchases of soybeans may continue as the Soviets attempt to increase meat production.

Implementation of the U.S.-USSR maritime agreement of 1975 ran into difficulties during 1976. Under terms of the agreement, one-third of all the grain shipped between the two nations was to be offered to U.S.-flag vessels. During the course of the year, far less than one-third was carried in U.S. bottoms, as the Soviets apparently took advantage of the more favorable shipping rates offered by third-country carriers. Negotiations on this and the question of the freight rate for U.S. ships in 1977 were carried out in Moscow and Washington in December 1976 and January 1977. An agreement was announced on March 30, 1977 calling for shipment of 3.3 million tons of grain in U.S. ships at a freight rate of \$16.47 per ton.

Soviet agricultural imports from the United States during 1977 are forecast at \$1.1 billion.

U.S. agricultural imports from the Soviet Union totaled \$8.4 million in 1976, up nearly one-sixth from 1975. Furskins, casein, casein glue, and champagne purchases accounted for nine-tenths of the

1976 total. U.S.-Soviet agricultural trade continued far out of balance, with Soviet imports from the United States far exceeding exports.

#### Balance-of-Trade Deficit Continues

Total Soviet trade turnover increased to 57 billion rubles in 1976, about \$76 billion at the current rate of exchange.

Soviet trade with hard currency nations<sup>4</sup> also increased in 1976. Total trade turnover amounted to \$25 billion, reflecting \$10 billion worth of exports and \$15 billion in imports. The 1976 deficit, \$5 billion, was down from the \$6 billion tallied in 1975. Imports of grain probably accounted for half of the 1976 hard currency trade deficit. According to the Bureau of East-West Trade, U.S. Department of Commerce, the total trade deficit with the United States reached \$2.1 billion in 1976, compared with \$1.6 billion in the preceding year. Borrowing and some gold sales by the Soviets were necessary in 1976 to finance trade with hard currency nations, and some nonagricultural purchases were probably deferred. Because of a shortage of hard currency, the Soviets are increasingly trying to pay for imported plant or technology on a barter basis. (*Judith G. Goldich*)

<sup>4</sup>Countries with which the Soviet Union has agreed to settle any trade imbalances in hard currency.

## POLICIES ENACTED ON AGRICULTURAL PLANS AND ORGANIZATION

### Tenth 5-Year Plan Finalized

On October 29, 1976, the USSR Supreme Soviet enacted into law "The State Plan for the Development of the USSR National Economy in 1976-80"—designated the tenth 5-year plan. This act ended a planning process that began over 2 years earlier. The initial proposed goals were developed by the various administrative organizations in the Soviet economy during the second half of 1974 and were submitted to the State Planning Committee, (USSR Gosplan). During 1975, Gosplan compiled these initial goals and adjusted them, as necessary, to conform to established national objectives for developing the Soviet economy. Then, comments on the practicality of these adjusted goals were probably obtained from subordinate administrative organizations before the official draft directives were established.

The draft directives of the Soviet tenth 5-year plan were published in the Soviet press in mid-December 1975.<sup>5</sup> These draft directives were pub-

lished to provide opportunity for discussion and debate before the plan was enacted into law.

The 25th Congress of the Communist Party of the Soviet Union was held from February 24 to March 5, 1976. The major act of this Congress was to consider and approve the draft directives for the tenth 5-year plan. The Congress, after hearing and discussing the basic orientation of the economic development of the USSR during 1976-80, directed the USSR Council of Ministers to submit the draft plan to the USSR Supreme Soviet in September 1976. The plan directives reportedly had been fully approved during a nationwide discussion.

The agricultural goals of the tenth 5-year plan, as enacted into law, were basically unchanged from the draft directives published in December 1975. The draft's 14-17 percent increase for agricultural production was specified as 16 percent in the adopted plan. Likewise, the draft's 24-27 percent increase in the income of collective farmers was established at 26 percent in the plan. The goal for irrigation may have been expanded from the 4 million hectares called for in the draft directives to

<sup>5</sup>For a discussion of those draft directives, see *The Agricultural Situation in the Soviet Union: Review of 1975 and Outlook for 1976*, FAER 118, Apr. 1976.

about 5 million hectares in the adopted plan, although the latter figure includes spring-flood irrigation, which may account for the difference. Otherwise, the adopted plans are the same as those

published in the draft directives. Table 11 contains available data concerning planned production goals for 1976-80 as well as the adopted goals for 1980. (*Fletcher Pope, Jr.*)

Table 11--Production of selected agricultural commodities, USSR, averages: 1971-75 actual, and 1976-80 plan, and 1980 plan

Item	Actual 1971-75	Plan 1976-80	Plan 1980
<u>Million metric tons</u>			
Grain .....	181.6	215-220	235
Cotton .....	7.7	8.6	9.0
Sugarbeets .....	76.0	95-98	NA
Sunflowerseeds .....	6.0	7.6	7.7
Potatoes .....	89.8	102.1	104
Vegetables .....	23.0	28.1	30
Fruits and berries .....	8.0	10.5	11.6
Grapes .....	4.4	6.5	NA
Meat (carcass wt.) .....	14.0	15.0-15.6	17.3
Milk .....	87.4	94-96	102
<u>1,000 metric tons</u>			
Flax fiber .....	456	539	NA
Tea leaves .....	312	354	NA
Tobacco .....	273	351	NA
Wool .....	442	473	515
<u>Billions</u>			
Eggs .....	51.4	58-61	67

NA = Not available.

**Government Procurement Goals and  
Prices Revised for Farm Products**

The Soviet Union has retained the two-tier agricultural procurement system in the tenth 5-year plan. Under this system, the Soviets set fixed, base plans for farm product sales to the state. The farms receive a basic price (which varies by type and quality of commodity and by area of the country) for deliveries within this quota. The Soviets also set targets for "above-plan" procurements, for which a bonus is paid, usually about 50 percent above the basic rate.

In the tenth 5-year plan, bonuses equal to 50 percent of the base Government purchase price are

to continue to be paid for above-plan sales of grains, potatoes, sugarbeets, sunflowerseeds, cotton, fiber flax, tea leaves, livestock and poultry, milk, eggs, wool, and karakul skins.

The level of base procurements has been increased, however, so that they comprise a higher share of total planned procurements than in the ninth 5-year plan. Thus, the 50-percent bonus may be paid on a smaller, and probably a much smaller, amount of Government purchases than in the past. The 1976-80 base plans for 7 of 10 specified commodities exceed by 10-15 percent the average amounts purchased by the Government during 1971-75, including above-plan purchases (table 12). Only for cotton is the 1976-80 base plan smaller

Table 12--Government procurements of selected agricultural commodities, USSR, 5-year averages, 1971-75 actual and 1976-80 plan

Commodity	1971-75 procurements, actual	1976-80 planned procurements		
		Total <u>1/</u>	Base-plan	Above-plan
		<u>Million metric tons</u>		
Grain .....	67.6	90.0 (117)	77.0	13.0
Cotton, unginned .....	7.7	8.6 (115)	7.5	1.1
Sugarbeets .....	67.9	89.5 (115)	77.8	11.7
Sunflowerseeds .....	4.6	6.0 (115)	5.2	.8
Potatoes .....	12.7	16.8 (115)	14.6	2.2
Vegetables .....	13.1	17.0 (115)	14.8	2.2
Livestock and poultry (liveweight) .....	15.4	17.4 (103)	16.9	.5
Milk .....	52.1	60.5 (103)	58.7	1.8
		<u>Billions</u>		
Eggs .....	27.5	34.3 (103)	33.3	1.0
		<u>1,000 metric tons</u>		
Wool .....	479	511 (103)	496	15

1/ Figures in parentheses indicate percentages that total planned procurements are of base-plan procurements.

than 1971-75 Government procurements, and by only 4 percent.

Government purchase prices have been increased by 7 percent for grain, 12 percent for sunflowers, and an average of 3 percent for some other crops and for livestock products. The contention that "these measures will result in the economic strengthening of the collective and state farms" is questionable.<sup>6</sup> Except for sunflowerseeds, and perhaps grain, the decrease in 50-percent bonuses resulting from the increased base plan will likely cancel out the effect of the increased purchase prices on farm incomes. Certainly, the highly productive farms that formerly had a relatively large amount of produce to sell above-plan at the 50-percent bonus will likely not benefit from the somewhat higher purchase prices. Also, in good agricultural years, most farms would probably have received higher incomes under the old base-plan system.

The Government likely is the big beneficiary of the changes in the 1976-80 procurement goals although more details are needed on actual increases in the base plans and on purchase price increases before a good evaluation can be made. Any increases in purchase prices would benefit poor farms that have had little, if any, produce to sell above the old base plan. Also, in poor agricultural years when Government purchases would be little, if any, above the old base plan, the incomes of the farms would be raised by any increases in the basic Government purchase prices. (*Fletcher Pope, Jr.*)

#### **Interfarm Cooperation and Agroindustrial Integration**

A Central Committee decree on interfarm and agroindustrial integration issued in June 1976 reemphasized the Soviet Government's interest in increasing agricultural specialization and modernization. This decree has been followed by a number of articles reporting on local progress in this direction.

The principal vehicle for agricultural specialization and concentration is the interfarm association. There are now approximately 7,000 of these operations, mainly in the RSFSR and the Ukraine. Most Soviet collective farms and about 8,000 state farms are members of at least one such organization. Rural construction cooperatives still account for about 40 percent of all interfarm associations, but there are also growing numbers in animal husbandry, poultry, forestry and forest products, and mixed feed production. Most of these interfarm operations are horizontally integrated

only. There are, however, a small but growing number of operations which are both vertically and horizontally integrated.

The June decree strongly encourages the formation of interfarm associations, but warns that they are not to be viewed as ends in themselves. The leadership specifically criticizes hastily conceived plans and uneconomical "gigantomania." In particular, the decree insists that animal husbandry associations develop an adequate feed base.

Interfarm associations can employ technology and capture economies of scale unavailable to most individual farms. The June decree claims, for example, that labor inputs per unit of output are 2.5 to 3 times higher on regular farms than they are on specialized interfarm animal husbandry operations, and that production costs on regular farms are 1.5-2 times higher. The decree implies that farms which actively and successfully promote specialization and efficiency will receive preference in the allocation of state resources, but warns that Party and state officials will more closely supervise interfarm organizations than they have in the past. (*Gregory D. Miller*)

#### **Seed Improvement Mandated**

The Soviets published a decree on November 21, 1976, on measures to improve during 1977-82 the selection, reproduction, processing, storage, and distribution of hybrid and selected seeds of grains, oilseed crops, and grasses. The major shortcomings that reportedly exist in this work include: (1) Underfulfillment of plans for seed production and sales to the Government; (2) inadequate reserves of seed being maintained; (3) slow introduction of new seed varieties; and (4) failure to replace seeds being used by farms on schedule in order to maintain strain purity.

The USSR Ministry of Agriculture is to establish a network of experimental seed production farms to ensure fulfillment of annual targets for the sale of elite and first-reproduction seeds to seed-growing farms. Furthermore, the Ministry is to establish a network of specialized seed-growing farms to provide the selected seeds required annually by collective and state farms. Also, an All-Union Seed Selection and Reproduction Association (USSR Sortsemprom) is to be set up within the Ministry, with subordinate units at the republic and oblast levels. The specialized seed-growing farms are to be directly subordinate to Sortsemprom.

The USSR Ministry of Procurements is to establish a network of specialized enterprises to ensure adequate processing, storage, and distribution of selected seeds. A Main Administration for the Procurement, Processing, Storage, and Sale of Seed (Glavzagotsempfond) is to be organized within this

<sup>6</sup>*Ekonomika Selskovo Khozyaystva*, No. 8, 1976, p. 25.

Ministry, with subordinate units at the republic and oblast levels.

The decree calls for seed reserves to be established and maintained by the Government as well as by the farms. Annual seed procurement plans for 1977-80 have been set for the all-union seed reserve fund but no amount has been published. However, state farms and other state agricultural enterprises are to establish seed reserves equal to 15 percent of the total requirement for seeds of these crops. Such reserves are also recommended for collective farms.

Various incentives and measures were adopted to aid in improving the seed situation. Mixed feed is to be sold to the seed-growing farms—which also raise livestock—in varying amounts depending on the type and quantity of seeds sold to the Government. Crop-breeding research establishments and seed-growing farms are to receive priority in the allocation of necessary equipment and materials. Relevant organizations are ordered to facilitate construction of the facilities needed.

Implementation of the decree is expected to result in some improvement in the seed situation. The policy of concentration and specialization as a means of increasing productivity and efficiency in Soviet agriculture is being extended to cover seed growing. However, the basic procedures to be used in developing new crop varieties and in seed reproduction remain essentially the same as those

used earlier. Thus, although improvements in the Soviet seed situation are expected, the resulting benefits probably will be somewhat slow in coming and relatively modest in scope. (*Fletcher Pope, Jr.*)

#### Minister of Agriculture Replaced

Valentin K. Mesyats replaced Dmitry S. Polyansky as Minister of Agriculture, USSR, on March 16, 1976. Mr. Mesyats was educated at Moscow's Timeryazev Agricultural Academy. He served as Deputy Minister of Agriculture, RSFSR, from 1965 to 1971 and more recently as Second Secretary of the Communist Party in the Republic of Kazakhstan.

Mr. Polyansky's removal from the position of Minister of Agriculture came following the 1975 drought. He also lost his membership on the Politburo, the 16-member top Party organization, at the conclusion of the 25th Congress of the Communist Party of the Soviet Union on March 5, 1976. However, Mr. Polyansky remains a member of the 287-member Party Central Committee, and in April 1976 was appointed Soviet Ambassador to Japan.

Mr. Polyansky had replaced V. V. Matskevich as Agricultural Minister early in 1973 following the 1972 drought. Mr. Matskevich also remains a member of the Party Central Committee and has been serving as Soviet Ambassador to Czechoslovakia. (*Fletcher Pope, Jr.*)

### OUTLOOK FOR 1977

Soviet agricultural production in 1977 is expected to increase less than 5 percent over the 1976 level (table 29) compared with planned growth of 8 percent. Although output should again attain the levels achieved in 1973 and 1974, it is not likely that it will exceed the 1973 record unless weather is unusually favorable. Gains in output of livestock products are expected to make the major contribution to increased agricultural output in 1977. A drought during the 1977 crop growing season, however, would result in little, if any, increase over the 1976 level.

The area of winter grains seeded in the fall of 1976 was 37 million hectares, a million hectares larger than a year earlier and a record for recent years, but 4 million hectares short of the planned 41 million. The expansion in winter grains was planned because of the favorable conditions created by good soil moisture supplies. Excellent progress was made in seeding until abnormally cold weather hit the winter grain regions in late September and continued through October.

Only 101 million hectares of land were plowed in the fall of 1976 for planting to spring crops in 1977. This compares with an area of 114 million hectares plowed in the fall of 1975 and a planned area of 116 million for plowing in 1976. Plowing in the fall of 1976 was hindered not only by cold weather but also by delays in the development and harvesting of crops because of the cool, rainy weather during the 1976 growing season. Thus, a large amount of plowing remained to be done in the spring of 1977.

The early, unusually cold weather in October 1976 caused winter grain to become dormant 10-20 days earlier than normal. Much of the grain was only in the 2-3 leaf stage and sizable areas either were just in the shoot stage or had not even sprouted. A fourth of the winter grain in the Non-Black Soil Zone was described by the Soviets as being in poor condition as of mid-February. Also, only half of the grain in the Central Black Soil Zone was described as in good or satisfactory condition. Under such conditions, there seems to be a

rather high probability that less than the normal percentage of grain survived the winter, although temperatures during November 1976-February 1977 ranged from about normal to somewhat above normal in the principal winter grain regions.

Precipitation during the fall and winter averaged somewhat below normal for the USSR as a whole. However, most of the principal winter grain regions received above-normal precipitation during these seasons. Also, soil moisture supplies have continued to range from about normal to well above normal in all of the principal agricultural areas except for parts of the Volga and the Urals Regions. Precipitation in these areas averaged only about half of normal during the fall and winter.

The Soviet grain harvest in 1977 reportedly is planned at 213.3 million tons, to be obtained with a planned yield of 1.66 tons per hectare. This implies a grain area of 128.5 million hectares—roughly equal to the grain areas in the past 2 years. The 1977 planned grain crop is 3 percent larger than the planned 1976 crop but is 5 percent less than the record harvest in 1976. The planned 1977 grain harvest seems attainable, given the trend in Soviet grain yields over the past 2 decades and expected grain area. Weather thus far would also tend to support this conclusion but precipitation and temperature during May-July are crucial in determining the eventual size of the Soviet grain crop.

Prospects for attaining the 1977 goals for the industrial crops are mixed. The planned 8.3 million tons of seed cotton probably will be equalled or exceeded, judging from past trends and levels of cotton production already achieved. The goals of 95.6 million tons of sugarbeets and 7.5 million tons of sunflowerseeds probably will not be reached in 1977 unless weather is unusually favorable. Each of these goals exceeds by about one-fourth the average production of these crops during 1971-75. However, the 1977 sugarbeet goal was exceeded by the 1976 crop and the sunflowerseed goal almost equalled in 1973. Finally, the goal of 522,000 tons of

fiber flax is unlikely to be reached since it is 14 percent above the 1971-75 average and 6 percent above the previous record of 493,000 tons in 1975.

Published 1977 output goals for other crops include 101 million tons of potatoes, 27.1 million of vegetables, 9.8 million of fruit and berries, 5.9 million tons of grapes, 337,000 tons of tobacco, and 342,000 tons of tea leaves. These goals average about 20 percent above average 1971-75 production, but range from 10 percent for tea leaves to 34 percent for grapes. Most of these goals seem out of reach unless weather provides an extra boost in yields. Plan fulfillment seems most likely for tea and tobacco, least likely for potatoes and vegetables.

The 1977 livestock product targets seem realistic given the livestock and poultry numbers at the beginning of the year and the good supply of feed from the 1976 crop season. The meat output goal is 14.5 million tons. An increase in meat production of about a million tons over the 13.4 million tons produced in 1976 seems likely. Pork is expected to account for about half of the increase, with beef and veal making up most of the remainder. Small increases, however, are also expected in the production of poultry as well as mutton and lamb.

Milk production in 1977 should equal or exceed the target of 92 million tons, and the 58.2-billion-egg goal should also be equalled or exceeded. Cow numbers on January 1, 1977 were slightly larger than at the beginning of 1974, a year when milk production about equalled the 1977 goal. Also, poultry numbers by the beginning of 1977 had fully recovered from the effect of the distress slaughtering in 1975, and the upward trend in egg yield per layer should permit the 1975 record of 57.5 billion eggs to be surpassed in 1977. On the other hand, even though the planned 1977 wool clip of 453,000 tons is only 2-3 percent above the 1971-75 average, it is not expected to be reached because sheep numbers have been decreasing in recent years. (*Fletcher Pope, Jr.*)

Table 13--Area, yield, and production of grain, USSR, 5 year averages, 1966-75, and annual, 1971-76

Year	Wheat			Rye	Barley	Oats	Corn	Other <sup>1/</sup>	Total Grain
	Winter	Spring	Total						
<u>1,000 hectares</u>									
Area:									
Average, 1966-70....	18,280	48,894	67,174	11,505	20,331	8,680	3,517	10,876	122,083
1971.....	20,694	43,341	64,035	9,507	21,566	9,632	3,332	9,865	117,937
1972.....	14,979	43,513	58,492	8,160	27,269	11,358	4,012	10,867	120,158
1973.....	18,340	44,815	63,155	7,012	29,387	11,887	4,031	11,266	126,738
1974.....	18,610	41,066	59,676	9,810	31,079	11,567	3,955	11,100	127,187
1975.....	19,593	42,392	61,985	8,010	32,547	12,107	2,652	10,619	127,920
Average.....	18,443	43,025	61,487	8,500	28,370	11,310	3,596	10,743	123,988
1976.....	17,248	42,214	59,462	9,035	34,258	11,237	3,303	10,425	127,720
1977.....									
1978.....									
1979.....									
1980.....									
Average.....									
<u>Metric tons per hectare</u>									
Yield:									
Average, 1966-70 <sup>2/</sup> ...	1.96	1.11	1.34	1.12	1.50	1.38	2.72	1.18	1.37
1971.....	2.31	1.18	1.54	1.35	1.60	1.52	2.58	1.20	1.54
1972.....	1.96	1.30	1.47	1.18	1.35	1.24	2.44	1.09	1.40
1973.....	2.70	1.35	1.74	1.53	1.87	1.47	3.28	1.44	1.76
1974.....	2.40	.95	1.40	1.55	1.74	1.32	3.05	1.35	1.54
1975.....	1.87	.70	1.07	1.13	1.10	1.03	2.74	.87	1.09
Average.....	2.26	1.10	1.45	1.36	1.53	1.31	2.82	1.19	1.47
1976.....	2.58	1.24	1.58	1.55	2.03	1.61	3.11	1.45	1.75
1977.....									
1978.....									
1979.....									
1980.....									
Average.....									
<u>1,000 metric tons</u>									
Production:									
Average, 1966-70....	35,888	54,304	90,192	12,834	30,454	11,938	9,558	12,785	167,562
1971.....	47,787	50,973	98,790	12,787	34,571	14,650	8,597	11,810	181,175
1972.....	29,380	56,613	85,993	9,633	36,813	14,095	9,830	11,874	168,238
1973.....	49,435	60,349	109,784	10,759	55,044	17,516	13,216	16,211	222,530
1974.....	44,698	39,215	83,913	15,223	54,208	15,302	12,104	14,958	195,708
1975.....	36,651	29,573	66,224	9,064	35,808	12,495	7,328	9,199	140,118
Average.....	41,590	47,345	89,941	11,493	43,289	14,812	10,215	12,810	181,554
1976.....	44,582	52,270	96,852	13,975	69,474	18,067	10,160	15,143	223,771
1977.....									
1978.....									
1979.....									
1980.....									
Average.....									

<sup>1/</sup> Includes millet, buckwheat, rice, pulses, and miscellaneous grains.<sup>2/</sup> Calculated from area and production data when official yield data are not available.

Table 14--Area, yield, and production of selected nongrain crops, USSR,  
5-year averages 1966-75, and annual 1971-76

Year	Seed cotton	Sugar- beets	Sun- flowers	Fiber flax	Potatoes	Vegetables	Fruit and berries, and grapes	Tobacco
1,000 hectares								
Area:								
Average, 1966-70..	2,527	3,582	4,837	1,341	8,238	1,440	2,625	164
1971.....	2,770	3,321	4,498	1,244	7,894	1,519	3,272	175
1972.....	2,735	3,486	4,394	1,251	7,960	1,578	3,264	184
1973.....	2,742	3,553	4,745	1,248	8,017	1,621	3,268	183
1974.....	2,880	3,610	4,686	1,210	7,983	1,635	3,339	187
1975.....	2,924	3,666	4,045	1,215	7,912	1,652	3,379	189
Average.....	2,810	3,527	4,474	1,234	7,953	1,601	3,304	184
1976.....	2,949	3,754	4,354	1,214	7,087	1,562	NA	NA
1977.....								
1978.....								
1979.....								
1980.....								
Average.....								
Metric tons per hectare								
Yield:								
Average, 1966-70..	2.41	22.8	1.32	.34	11.5	13.2	.37	1.51
1971.....	2.56	21.9	1.26	.39	11.7	13.2	.38	1.47
1972.....	2.67	22.3	1.14	.36	9.8	12.2	.29	1.61
1973.....	2.80	24.7	1.55	.35	13.5	15.5	.41	1.67
1974.....	2.92	21.6	1.44	.33	10.1	14.1	.37	1.67
1975.....	2.69	18.1	1.23	.41	11.2	13.5	.42	1.58
Average.....	2.73	21.7	1.32	.37	11.3	13.7	.38	1.60
1976.....	2.81	26.3	1.15	.40	12.0	15.1	NA	NA
1977.....								
1978.....								
1979.....								
1980.....								
Average.....								
1,000 metric tons								
Production:								
Average, 1966-70..	6,099	81,118	6,389	458	94,813	19,472	9,710	247
1971.....	7,101	72,185	5,663	486	92,655	20,840	12,370	258
1972.....	7,296	76,424	5,048	456	78,329	19,941	9,570	297
1973.....	7,664	87,047	7,385	443	108,200	25,927	13,351	305
1974.....	8,409	77,948	6,784	402	81,022	24,811	12,441	313
1975.....	7,864	66,314	4,990	493	88,703	23,351	14,235	298
Average.....	7,667	75,984	5,974	456	89,782	22,774	12,393	294
1976.....	8,281	98,605	5,219	485	85,135	23,537	3/15,000	NA
1977.....								
1978.....								
1979.....								
1980.....								
Average.....								

NA = Not available.

1/ Bearing area.  
2/ Including makhorka.  
3/ Preliminary.

Table 15--Area, yield, and production of selected forage crops, USSR,  
5-year averages, 1971-80, and annual, 1971-76

			Hay <u>1/</u>				
Year	Annual	Perennial	Tame total	Wild	Total	Silage corn <u>2/</u>	Feed roots <u>3/</u>
<u>1,000 hectares</u>							
Area:							
1971 .....	18,863	22,907	41,770	NA	NA	17,835	1,651
1972 .....	18,021	24,243	42,264	NA	NA	17,896	1,770
1973 .....	15,901	24,616	40,517	NA	NA	16,927	1,755
1974 .....	16,066	25,505	41,571	NA	NA	17,127	1,703
1975 .....	16,715	25,353	42,068	NA	NA	17,346	1,639
Average ..	17,113	24,524	41,637	NA	NA	17,426	1,704
1976 .....	NA	NA	NA	NA	NA	18,114	1,803
1977 .....							
1978 .....							
1979 .....							
1980 .....							
Average ..							
<u>Metric tons per hectare</u>							
Yield <u>4/</u> :							
1971 .....	1.48	1.56	1.52	0.63	NA	11.7	20.6
1972 .....	1.50	1.67	1.60	0.64	NA	11.2	20.7
1973 .....	2.03	1.86	1.92	0.62	NA	16.3	24.9
1974 .....	1.96	1.99	1.98	0.58	NA	12.9	24.0
1975 .....	1.51	1.79	1.68	0.52	NA	10.8	NA
Average ..	1.68	1.78	1.74	0.60	NA	12.6	NA
1976 .....							
1977 .....							
1978 .....							
1979 .....							
1980 .....							
Average ..							
<u>1,000 metric tons</u>							
Production:							
1971 .....	27,911	35,741	63,652	49,020	112,672	210,862	36,694
1972 .....	27,019	40,468	67,487	47,015	114,502	206,138	39,559
1973 .....	32,288	45,799	78,087	47,971	126,058	281,744	47,106
1974 .....	31,475	50,864	82,339	48,350	130,689	226,464	43,934
1975 .....	25,260	45,354	70,614	41,843	112,457	192,981	33,217
Average ..	28,791	43,645	72,436	46,840	119,276	223,407	40,102
1976 .....	34,300	49,100	83,400	NA	NA	275,077	45,522
1977 .....							
1978 .....							
1979 .....							
1980 .....							
Average ..							

NA = Not available.

1/ Includes hay equivalent of grass and legume haylage, green chop, and dehydrated meal.

2/ Includes corn silage and green chop.

3/ Includes sugarbeets for feed.

4/ Tame hay yields are calculated; official published yields include hay only and exclude hay equivalent of other grasses and legumes. Wild hay yields are published yields for socialized farms. Silage corn and feed root yields are published yields, which are slightly lower than calculated yields, indicating that a small part of production originates from intertilled or double-cropped area not included in area data.



Table 17--Government procurements of grain, USSR, 5-year averages, 1961-75, and annual, 1966-76

Year	Wheat	Rye	Feed grains			Total	Millet	Buckwheat	Rice	Pulses	Others	Total grain
			Barley	Oats	Corn							
1,000 metric tons												
Average, 1961-65 ...	30,253	5,845	6,355	674	4,121	11,150	1,155	242	207	2,151	634	51,637
1966 .....	56,848	4,734	6,991	637	1,529	9,157	1,601	379	440	1,507	318	74,984
1967 .....	38,165	4,182	6,909	1,473	1,995	10,377	1,613	559	579	1,322	437	57,234
1968 .....	48,965	5,535	7,727	977	970	9,674	1,291	700	714	1,798	370	69,047
1969 .....	36,127	3,332	7,272	1,341	2,470	11,083	1,512	639	759	1,679	409	55,540
1970 .....	51,046	5,399	9,130	1,411	1,724	12,265	972	482	869	1,514	737	73,284
Average .....	46,230	4,636	7,606	1,168	1,738	10,512	1,398	552	672	1,564	454	66,018
1971 .....	47,338	4,809	5,188	1,340	1,689	8,217	898	551	1,048	1,002	256	64,119
1972 .....	42,106	2,978	7,042	1,710	2,013	10,765	1,016	365	1,218	862	661	59,971
1973 .....	57,995	3,188	17,811	2,363	2,909	23,083	2,637	666	1,235	1,424	301	90,529
1974 .....	38,268	6,618	15,895	2,348	3,021	21,264	1,530	440	1,337	1,481	2,347	73,285
1975 .....	29,522	2,865	9,434	2,175	2,366	13,975	460	156	1,456	607	1,172	50,213
Average .....	43,046	4,092	11,074	1,987	2,400	15,461	1,308	436	1,259	1,075	947	67,624
1976 .....												92,000
1977 .....												
1978 .....												
1979 .....												
1980 .....												
Average .....												



Table 19--Government procurements of livestock products, 5-year averages, 1961-75, and annual, 1971-76

Year	Total meat 1/		Milk and milk products	Eggs	Wool 2/
	Live	Carcass			
	weight	weight			
	-	-	1,000 tons	Millions	1,000 tons
Average, 1961-65	8,554	5,246	31,232	8,665	369
Average, 1966-70	11,610	7,318	43,197	14,404	412
1971	14,163	9,203	47,078	21,570	457
1972	15,023	9,712	48,443	24,299	452
1973	14,695	9,471	52,978	27,544	470
1974	16,187	10,474	55,768	30,892	507
1975	16,765	10,861	56,296	33,065	511
Average	15,367	9,944	52,113	27,474	479
1976	14,700	9,400	56,200	32,900	NA
1977					
1978					
1979					
1980					
Average					

1/ Live weight (cattle and poultry).2/ Accounting weight.

Table 20--Livestock slaughter on collective and state farms and on private holdings, USSR, 1972-75

Economic holding and year	Cattle			Hogs			Sheep and goats		
	Number : slaugh- tered :	Live : weight :	Average : weight :	Number : slaugh- tered :	Live : weight :	Average : weight :	Number : slaugh- tered :	Live : weight :	Average : weight :
	Thou.	M. tons	Kilograms	Thou.	M. tons	Kilograms	Thou.	M. tons	Kilograms
Collective and state farms:									
1972	24,741	7,119	288	43,238	3,699	86	35,445	1,036	29
1973	25,630	7,400	300	40,737	3,432	84	35,448	1,084	31
1974	26,744	8,362	313	42,969	4,093	95	39,541	1,193	30
1975									
Total social-ized farms: 1/									
1972	25,781	7,652	297	46,091	4,385	95	36,146	1,075	30
1973	26,326	7,858	298	43,402	4,124	95	36,080	1,127	31
1974	27,466	8,633	314	45,680	4,537	99	40,199	1,217	30
1975	27,915	8,674	311	54,707	4,852	89	42,657	1,252	29
Private holdings:									
1972	8,757	2,054	235	21,843	2,773	127	23,100	858	37
1973	8,612	2,053	238	20,026	2,524	126	22,808	869	38
1974	8,494	2,187	258	21,181	2,700	127	21,769	828	38
1975	8,682			21,603			23,641		
Total:									
1972	34,538	9,706	281	67,934	7,158	105	59,246	1,933	33
1973	34,938	9,911	284	63,428	6,648	105	58,888	1,996	34
1974	35,960	10,720	307	66,861	7,237	108	61,968	2,045	33
1975	36,597			76,310			66,298		

1/ Includes collective and state farms and other Government farms.

Table 21--Vegetable oil production from domestic and imported oilseeds, USSR, monthly and cumulative, September-August, 1972/73-1976/77 1/

[illegible]

1/ Beginning January 1974, data are from information supplied by the USSR under the US-USSR Agreement on Agricultural Cooperation.  
2/ Includes preceding month.

Table 22--Deliveries of mineral fertilizers to agriculture, USSR, annual 1966-76

Year	Total		Nitrogen 1/	Phosphate 1/	Potash	Trace elements	Feed additives	
	Including	Excluding					Urea	Feed
	feed	feed						phosphates
	additives	additives						
1,000 metric tons								
Standard gross weight:								
1966 .....	30,535	30,535	12,955	12,900	4,573	107	--	--
1967 .....	33,668	33,668	15,066	13,357	5,136	109	--	--
1968 .....	36,191	36,191	16,847	14,013	5,231	100	--	--
1969 .....	38,843	38,843	18,526	14,719	5,575	23	--	--
1970 .....	45,649	45,379	22,463	16,673	6,187	56	--	270
1971 .....	50,547	50,020	25,279	17,973	6,703	65	--	527
1972 .....	54,795	53,932	27,346	18,724	7,784	78	90	773
1973 .....	59,988	58,472	30,361	19,346	8,667	98	158	1,358
1974 .....	65,884	63,841	32,665	22,170	8,914	92	243	1,800
1975 .....	75,265	73,084	35,798	25,209	11,991	86	334	1,847
1976 .....	77,100	74,400						
1977 .....								
1978 .....								
1979 .....								
1980 .....								
Nutrient weight:								
1966 .....	6,992	6,992	2,656	2,425	1,902	9	--	--
1967 .....	7,746	7,746	3,089	2,511	2,136	10	--	--
1968 .....	8,273	8,273	3,454	2,634	2,176	9	--	--
1969 .....	8,885	8,885	3,798	2,766	2,319	2	--	--
1970 .....	10,368	10,317	4,605	3,133	2,574	5	--	51
1971 .....	11,451	11,352	5,182	3,376	2,788	6	--	99
1972 .....	12,530	12,367	5,606	3,516	3,238	7	18	145
1973 .....	13,756	13,470	6,224	3,632	3,605	9	32	254
1974 .....	14,958	14,572	6,696	4,160	3,708	8	50	336
1975 .....	17,477	17,063	7,339	4,728	4,988	8	68	346
1976 .....								
1977 .....								
1978 .....								
1979 .....								
1980 .....								

-- = Negligible.

1/ Excluding feed additives.

Table 23--Applications of mineral fertilizer to selected crops,  
and percentage of the crop fertilized, USSR, 1974-75

Crop	Rate		Share fertilized	
	1974	1975	1974	1975
	-- Kilograms per hectare --		-- Percent --	
Grain, excluding corn .....	40	42	48	48
Corn for grain .....	124	155	94	94
Cotton .....	367	391	98	99.5
Sugarbeets .....	299	399	98	99.4
Potatoes .....	229	254	91	93

Table 24--Mixed feed production, USSR, 1970-76, and 1980 plan

Year	State full-ration feed	Additives	Inter-farm and other industrial	Total industrial	Farm and other	Total full-ration feed available	Additive conversion ratio <u>1/</u>
	<u>1,000 metric tons</u>						
1970 .....	23,200	(130)	(500)	23,700	(200)	23,900	(5.33)
1971 .....	26,000	265	(700)	26,700	(700)	(27,400)	(5.33)
1972 .....	(27,700)	(330)	(600)	28,300	(1,200)	(29,500)	(5.33)
1973 .....	(31,000)	(720)	(700)	31,700	(3,100)	(34,800)	(5.33)
1974 .....	34,400	(1,100)	(3,300)	37,700	(2,600)	(40,300)	(5.33)
1975 .....	37,000	1,500	4,000	41,000	4,000	45,000	5.33
1976 .....	40,400	NA	5,600	46,000	NA	NA	NA
1980 plan ....	53,000	4,000	(24,000)	(77,000)	(3,000)	80,000	6+

NA = Not available.

( ) = Estimates.

1/ Calculated for 1975 and assumed constant, 1970-75. This is the ratio of Inter-farm and other industrial plus Farm and other to Additives.

Table 25--Grain imports 1/ by point of origin, USSR, 1971/72-1974/75

Country of origin	1971/72			1972/73			1973/74			1974/75 2/		
	Total	Wheat		Total	Wheat		Total	Wheat		Total	Wheat	
Total	7,822	3,525		22,538	15,590		10,990	4,508		5,230		2,500
					<u>1,000 metric tons</u>							
Market countries	7,493	3,215		21,807	15,250		10,609	4,388				
United States	2,932	3		13,685	9,485		7,883	2,725		2,280		978
Canada	2,903	2,672		4,928	4,168		1,768	1,597		3,588		2,910
Australia	600	502		908	908		122	18		680		635
Argentina	127	0		52	0		308	29		1,827		680
Centrally planned	330	310		732	339		380	120				

1/ Excluding rice.  
2/ Preliminary.

Table 26--Production of natural fibers, USSR, 5-year averages, 1966-75, and annual, 1966-75

[illegible]

Table 27--Principal agricultural imports, USSR, 1969-75

Commodities	1969	1970	1971	1972	1973	1974	1975
				1,000 metric tons			
Grain:							
Total .....	639	2,159	3,476	1/15,500	1/23,900	1/7,131	1/15,909
Wheat .....	38	1,847	2,324	8,100	15,200	2,700	9,146
Corn .....	498	304	881	4,059	5,380	3,400	5,548
Rice, milled .....	326	323	332	280	154	194	279
Wheat flour .....	273	259	279	274	307	316	339
Animals for slaughter:							
Cattle .....	29	20	14	10	12	86	208
Sheep .....	37	40	39	45	44	46	37
Horses .....	14	15	16	15	15	15	15
Meat and meat products .....	76	165	225	131	128	515	515
Shell eggs 2/ .....	26	33	52	57	44	40	42
Fruit:							
Fresh .....	720	679	691	808	828	901	860
Dried .....	104	129	130	96	80	95	118
Vegetables:							
Fresh .....	182	163	200	269	162	196	144
Canned .....	214	249	310	346	351	362	347
Raw sugar 3/ .....	1,332	3,003	1,503	1,970	2,650	1,920	3,250
Coffee .....	48	42	43	42	32	47	60
Cocoa beans .....	99	100	138	132	119	143	156
Tea .....	28	29	43	48	37	49	67
Tobacco .....	55	70	72	90	92	79	88
Hides and skins 4/ .....	27	30	25	24	27	22	22
Oilseeds .....	58	43	45	379	768	70	424
Crude rubber .....	295	316	246	231	274	315	235
Wool, scoured .....	76	83	86	83	96	100	109
Cotton, lint .....	170	258	243	167	131	140	137
Vegetable oil, edible .....	24	65	64	60	58	29	61

1/ In addition to the wheat and corn, total grain figures included 2.6 million tons of barley in 1972; 1.9 million tons of barley and 1.3 million of rye in 1973; 0.7 million tons of rye and 0.3 million tons of barley in 1974; and 1.0 million tons of barley in 1975.

2/ Converted at the rate of 18,182 eggs per metric ton or 55 grams per egg.

3/ Includes any refined sugar imports converted to a raw basis.

4/ Millions of hides and skins.

Table 28--Principal agricultural exports, USSR, 1969-75

Commodities	1969	1970	1971	1972	1973	1974	1975
<u>1,000 metric tons</u>							
Grain:							
Total .....	7,205	5,698	8,640	4,560	4,853	7,030	3,578
Wheat .....	5,979	4,733	7,617	3,890	4,193	5,262	2,665
Barley .....	748	503	688	298	276	924	818
Corn .....	247	281	118	249	365	782	86
Rye .....	222	172	208	115	0	0	0
Oats .....	8	9	10	8	19	61	9
Flour .....	593	772	654	378	614	892	569
Groats .....	42	25	40	146	147	245	124
Pulses .....	422	65	150	55	47	58	50
Sugar, refined .....	1,081	1,079	1,002	50	43	95	53
Meat and meat products ..	98	55	35	60	75	56	44
Butter .....	74	73	24	16	18	18	20
Hides and skins $\frac{1}{2}$ .....	3	2	1	1	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$
Oilseed cake and meal ....	319	54	44	52	26	$\frac{3}{3}$	$\frac{3}{61}$
Sunflowerseed .....	345	143	84	74	73	$\frac{63}{63}$	
Vegetable oil, edible:							
Total .....	696	372	408	423	371	513	416
Sunflower .....	656	351	379	394	342	481	388
Tea .....	13	10	11	12	12	14	17
Cotton, lint .....	452	516	547	652	728	739	800
Flax tow .....	18	32	27	26	30	33	20
Starch .....	21	19	14	8	6	16	10

1/ Millions of hides and skins.

2/ Less than 500,000.

3/ Not reported.

Table 29--Selected economic indicators, USSR, 1960-76

Year	Popu- lation July 1	Economic growth			Gross			Capital			Employment 4/			Average			Retail trade 6/			Foreign trade		
		:			:			:			:			:			:			:		
		:			:			:			:			:			:			:		
		:			:			:			:			:			:			:		
		Percent	Percent	Billion rubles	Billion rubles	Millions	Millions	Millions	Rubles	Billion rubles	Billion rubles	Billion rubles	Food	Exports	Imports							
	Millions																Million rubles	Million rubles	Million rubles			
1960	214.3	7.7	9.5	63.0	42.0	84.3	29.4	80.6	78.6	42.8	5,007	5,066										
1961	218.1	6.8	9.1	64.7	43.8	86.6	28.6	83.9	81.1	44.9	5,399	5,245										
1962	221.7	5.7	9.7	65.7	45.9	88.3	28.1	86.7	87.3	49.0	6,327	5,810										
1963	225.1	4.0	8.1	60.7	48.3	89.9	27.7	88.2	91.7	53.1	6,545	6,353										
1964	228.1	9.3	7.3	69.5	52.6	92.5	27.7	90.8	96.4	56.0	6,915	6,963										
1965	230.9	6.9	8.7	70.9	57.0	95.8	28.0	96.5	104.8	60.4	7,359	7,252										
1966	233.5	8.1	8.7	77.0	61.0	98.3	27.9	100.2	113.0	64.9	7,957	7,122										
1967	236.0	8.6	10.0	78.1	66.0	100.7	27.7	104.7	123.6	70.4	8,687	7,683										
1968	238.3	8.3	8.3	81.6	71.2	103.2	27.5	112.7	134.2	75.5	9,571	8,469										
1969	240.6	4.8	7.1	78.9	73.6	105.4	27.1	116.9	144.4	80.7	10,490	9,294										
1970	242.8	9.0	8.5	87.0	82.0	107.2	26.8	122.0	155.2	86.2	11,520	10,559										
1971	245.1	5.6	7.7	87.9	88.0	109.3	26.6	125.9	165.6	91.5	12,425	11,232										
1972	247.5	3.9	6.5	84.3	94.3	111.4	26.5	130.2	176.4	96.5	12,734	13,310										
1973	249.7	8.9	7.5	97.9	98.7	113.6	26.6	134.9	185.7	101.2	15,802	15,544										
1974	252.0	5.4	8.0	95.2	105.7	115.7	26.7	141.1	196.6	106.5	20,738	18,829										
1975	254.3	4.5	7.5	89.2	114.9	117.6	26.4	145.8	210.4	112.7	24,030	26,669										
1976 1/	256.7	5.0	4.8	93.0	119.5	119.3	26.0	151.0	220.0	NA	NA	NA										
1977																						
1978																						
1979																						
1980																						

NA = Not available.

1/ Constant prices.

2/ 1965 prices.

3/ 1969 prices; total investments in economy.

4/ Including average employment on socialized sector of collective farms, but excluding work on private plots.

5/ Excluding collective farmer incomes.

6/ Including public dining, but excluding trade on collective farm markets.

7/ Preliminary.

# CONVERSION EQUIVALENTS

## Pounds per bushel

Wheat, potatoes, and soybeans.....	60
Rye, corn, and grain sorghum.....	56
Barley.....	48
Oats.....	32

One kilogram	equals	2.2046 pounds
One centner or metric quintal	"	220.46 pounds
One metric ton	"	10 centners or 2204.6 pounds
One hectare	"	2.471 acres
One acre	"	0.4 hectare
One kilometer	"	0.6 mile

## Metric tons to bushels

<u>One metric ton</u>	<u>Bushels</u>
Wheat, potatoes, and soybeans.....	36.743
Rye, corn, and grain sorghum.....	39.368
Barley.....	45.929
Oats.....	68.894

## Bushels to metric tons

<u>One bushel</u>	<u>Metric tons</u>
Wheat, potatoes, and soybeans.....	.02722
Rye, corn, and grain sorghum.....	.02540
Barley.....	.02177
Oats.....	.01452

To convert centners per hectare to bushels per acre,  
multiply by:

Wheat, potatoes, and soybeans.....	1.487
Rye, corn, and grain sorghum.....	1.593
Barley.....	1.8587
Oats.....	2.788

To convert bushels per acre to centners (metric quintals)  
per hectare, multiply by:

Wheat, potatoes, and soybeans.....	0.6725
Rye, corn, and grain sorghum.....	0.6277
Barley.....	0.5380
Oats.....	0.3587

One metric ton of seed cotton = 1.562 bales of 480 pounds.  
One metric ton of ginned cotton = 4.593 bales of 480 pounds.





UNITED STATES DEPARTMENT OF AGRICULTURE  
WASHINGTON, D.C. 20250

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